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THE ROSCOE MANUAL
Volume 3: Program Structure

General Research Corporation
P.O. Box 3587
Santa Barbara, California 93105

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The ROSCOE computer code is designed specifically to be the "laboratory standard" for evaluating nuclear effects on radar systems. The program provides a means for (1) evaluating radar acquisition, discrimination, and tracking performance in a nuclear environment, (2) measuring various propagation error sources, and (3) computing specific phenomenological data.		

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20. ABSTRACT (Continued)

The ROSCOE users manual is divided into four volumes:

- Volume 1: Program Description
- Volume 2: Sample Cases
- Volume 3: Program Structure
- Volume 4: Systems Models

Volume 1 provides the user with a brief overview of the code, a description of the input and output, and some sample input decks. Volume 2 contains illustrative examples showing the use of the code in various modes. Volume 3 presents structural details of the code (such as the subroutine structure and dataset structure) for the programmer-user. Volume 4 describes the systems content of the code.

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INTRODUCTION

The previous two volumes gave insight into the program structure, but not the detailed information necessary to delve into the code listings. The previous information should be satisfactory for the user who is willing to accept the program output as reasonable and is only interested in running his case; but the analyst or programmer who needs to assess the applicability of a model to his purposes, or wishes to modify the code, requires additional structural details. The intent of this volume is to provide these details.

This volume is divided into two sections. The first provides detailed information about the dataset structure used in the systems and physics interface modules. The second contains detailed information about the length and calling structure of labeled common blocks, sub-routines, and functions.

SECTION 1: DATASET NOTEBOOK

The dataset notebook is made up of the following parts:

- 1.1 Data Descriptor Deck
- 1.2 Complete Data Listings
- 1.3 Dataset List by Name
- 1.4 Dataset List by Mnemonic
- 1.5 Variable Name List
- 1.6 Dataset Calls

Section 1.1 consists of card images of a data descriptor deck which is the primary source for the parts which follow. The first card in each dataset contains the word NEW in columns 1-3; a two-character mnemonic in columns 5-10, which identifies the dataset and which is appended as a suffix to the names of all the variables in that dataset; and the dataset name starting in column 15. Succeeding cards describe the individual variables in the dataset. These cards are punched as follows:

Column 1: Fortran variable type (where H = Hollerith, I = integer, R = real, Ri = vector of length i, Ai = array of length i, DSP = pointer to another dataset, LHV = list header variable, P = continuation card for variable definition)

Column 5: Variable name (five characters or less to which the two-character dataset mnemonic will be added)

Column 15: Variable description

The data descriptor deck is passed through a processing program (PRINOUT) to produce the next four parts of the dataset notebook. This program also produces punched-card equivalence blocks for each dataset suitable for automatic inclusion in the compiled programs which require them.

Section 1.2 is a segment of the output from the PRINOUT program. This part prints the contents of the datasets and their composite mnemonics in an easy-to-read form. The two-letter dataset mnemonic, the dataset name, and a number are given on the first line. This is followed by descriptions of each word in the dataset including the word number, the Fortran variable type (integer, real, Hollerith, DSP, or LHV), and a short phrase describing the variable. In addition, the total number of words in the dataset is provided. (Note that the number of words exceeds the number of variables when any of them are vectors or arrays.)

The next two outputs from PRINOUT (Secs. 1.3 and 1.4) are lists of the datasets, alphabetized by name and by the two-character mnemonic, respectively. In each case, the dataset number is given so that the desired dataset information can be quickly found in Sec. 1.2.

The last output from PRINOUT (Sec. 1.5) is an alphabetical list of all variables in the dataset notebook, with the mnemonics and numbers of the datasets in which they reside. Thus to find the definition of a particular variable, the user can look it up in this part of the notebook, get the dataset number, and look up the variable definition in Sec. 1.2.

Finally, Sec. 1.6 contains dataset calling structure information. Here, each dataset (and common block) is given on the left, followed by a list of all subroutines which use it on the right. This listing can be useful to the programmer when a dataset is revised, so that all subroutines which call it can be recompiled and make use of the new data.

SECTION 2: PROGRAM STRUCTURE NOTEBOOK

A second notebook showing some elements of the program structure is given in Sec. 2, which includes the following parts:

- 2.1 Subroutine Length/Externals
- 2.2 List of Routines Calling a Specific Subroutine
- 2.3 List of Routines Containing a Specific Common
- 2.4 List of Routines Called by a Specific Subroutine

Section 2.1 is a list of all ROSCOE subroutines, programs, and functions. The basic ROSCOE routines are given in alphabetical order, followed by the FLEXRED, DSA, and TRAIID routines ordered as they currently exist on these files. The routines are numbered and the date they were last compiled is given. This list shows the program length, the externals called directly by this routine (including library subroutines and functions), the common blocks used, and all entry points to the routine.

Section 2.2 again lists each subroutine alphabetically, this time with a list of all subroutines which call the given routine. A similar output for common blocks is given in Sec. 2.3. The form of this table is as follows: common block number, common block name (listed alphabetically), common block length, list of subroutines which contain this common. Note that the blank common storage area can be dimensioned differently in each routine.

Section 2.4 contains the complement of the information given in Sec. 2.2. That is, for each subroutine, a list is given of all the subroutines it calls (directly or in a secondary fashion). In addition, the total length of all subroutines called is given.

This list is particularly useful for determining overlay structure, since all the routines in a given overlay must be contained in the main program listing for that overlay. For example, the prompt energy deposition in the high-altitude grid is computed by program PROMPG. Section 2.4 shows that PROMPG and the routines it calls (and the routines they call, etc.) require 11033 words of storage, not including common storage and higher-level overlay storage.

Section 1

DATASET NOTEBOOK

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PART 1.1 - DATA DESCRIPTOR DECK

NEW TO	TARGET POINT DATASET	2
M NAME	NAME OF TARGET POINT	3
R3 POS	LOCATION OF IMPACTING BOOSTERS REQUESTED	4
I NB005	NUMBER OF IMPACTING BOOSTERS REQUESTED	5
R THIT	DESIRED ARRIVAL TIME FOR THE FIRST R/V	6
R DELT	TIME BETWEEN SUCCESSIVE ARRIVALS	7
R SIGT	SIGMA FOR GAUSSIAN ERRORS IN ARRIVAL TIME	8
R CEP	CIRCULAR PROBABLE ERROR (CEP) IN IMPACT	9
I MODE	TYPE OF TRAJECTORY REQUESTED AS IN R08B2 (SEE TRAITD)	10
R VALUE	ASSOCIATED VALUE FOR PRESCRIBED MODE	11
R TCGOUT	POINTER TO TARGET OUTPUT ARRAY	12
NEW AD	ATTACK TYPE DATASET	13
M KTYP	FLAG PRESCRIBING -UNIFORM- OR -INTERVAL-TYPE OF ATTACK GENERATION	14
M KDAY	FLAG PRESCRIBING -DAY- OR -NIGHT- FOR BLACKOUT CALCULATIONS	15
I IDAY	DAY OF THE CALCULATION	16
I IMON	MONTH OF THE CALCULATION	17
I IYER	YEAR OF THE CALCULATION	18
R TDAY	TIME OF DAY (HRS.MIN IS FORM) OF APPROXIMATE CENTER OF	19
P BZ	THE PHENOMENOLOGY REGION	20
R BLAT	ALTITUDE OF REFERENCE	21
R BLON	LONGITUDE OF REFERENCE	22
R IFLAG	INITIALIZATION FLAG	23
NEW OBSE	OBJECT DATASET	24
M NAME	IDENTIFYING NAME FOR OBJECT	25
DSP TYPE	POINTER TO OBJECT TYPE DATASET	26
DSP POS	POINTER TO DATASET CONTAINING POSITION DATA FOR THIS OBJECT	27
M KFLG	FLAG 'ALIVE OR DEAD' IF DEAD HOW DIED	28
DSP PCS	POINTER TO THE RADAR CROSS SECTION DATASET	29
DSP TUMR	POINTER TO THE TUMBLING MODEL DATASET	30
LHV FILE	LIST OF TRACK FILES INVOLVING THIS OBJECT	31
NEW OT	OBJECT TYPE DATASET	32
M NAME	NAME OF STANDARD OBJECT TYPE	33
DSP BETA	POINTER TO BETA-TABLE APPROPRIATE TO THIS OBJECT TYPE	34
R RALT	RE-ENTRY ALTITUDE (SWITCH FROM KEPLER TO INTEGRATION HERE)	35
DSP RCS	POINTER TO RCS MODEL	36
DSP WTYPE	POINTER TO WEAPON TYPE (0 IF OBJECT IS NOT A WARHEAD)	37
DSP TUMR	POINTER TO TUMBLING MODEL	38
NEW FT	STORAGE ALLOCATION FOR OBJECT BETA-TABLE	39
I KTYPE	MODEL TYPE (KTYPE=2)	40
I NVALS	NUMBER OF POINTS IN THE TABLE	41
I MPNT	DO N-POINT INTERPOLATION FOR THIS VALUE OF N	42
R2 BALT	ALTITUDE-BETA PAIR NUMBER 1. IN TABULATED FUNCTION	43
R2	ALTITUDE-BETA PAIR NUMBER 2	44
P	AND SO ON, FOR AS MANY AS NEEDED.	45
NEW OP	OBJECT POSITION DATASET	46
R10 ORBEL	ORBITAL ELEMENT DATASET A LA TRAITD (O.V.)	47
R RTIM	RE-ENTRY TIME	48
R10 STATE	ENDO-ATMOSPHERIC STATE VECTOR	49
DSP BETA	POINTER TO THE APPLICABLE BETA TABLE FOR ENDO-ATMOSPHERIC WORK	50
R BMUL	BETA MULTIPLIER FOR MODIFICATION OF THE NOMINAL BETA TABLE	51
		52
		53

NEW PD	RADAR DATASET	USCRIP 54
H NAME	NARC OF RADAR FOR IDENTIFICATION PURPOSES	USCRIP 55
DSP PLTFM	POINTER TO PLATFORM MODEL DATASET	USCRIP 56
DSP BOPE	POINTER TO THE BORESIGHT DEFINITION SET FOR THIS RADAR	USCRIP 57
DSP T-PE	POINTER TO RADAR TYPE DATA APPROPRIATE TO THIS RADAR	USCRIP 58
DSP NOISE	POINTER TO THE ERROR COEFFICIENTS GIVING THEM AS FCN. OF S/N	USCRIP 59
DSP DSCDM	POINTER TO DISCRIMINATION INPUT DATASET (DI)	USCRIP 60
LHV FILE	LIST OF TRACK FILES FOR OBJECTS BEING TRACKED BY THIS RADAR	USCRIP 61
NEW FO	BASIC DATA SET	USCRIP 62
LHV OUTSM	LIST OF EVENTS	USCRIP 63
DSP OVLY	POINTER TO OUTPUT SUMMARY DATASET	USCRIP 64
DSP INOUT	OVERLAY CALLING STRUCTURE	USCRIP 65
LHV GBLIS	INTERNAL OUTPUT INSTRUCTIONS	USCRIP 66
LHV RADLS	LIST OF OBJECTS	USCRIP 67
DSP FILDT	RADAR LIST HEADER	USCRIP 68
LHV BCLIS	POINTER TO PARAMETERS FOR THE TRACK FILTER	USCRIP 69
LHV FRLTS	BURST LIST	USCRIP 70
DSP CONST	FIREBALL LIST	USCRIP 71
LHV FRLIS	A CONSTANT ARRAY SIMILAR TO -CONCON- INTERNALLY COMPUTED	USCRIP 72
LHV OFLIS	LOW ALTITUDE FIREBALL ARRAY LIST A LA -LATANG- MODEL	USCRIP 73
DSP MGFLD	HIGH ALTITUDE BURST LIST FOR THE HEAVE MODEL	USCRIP 74
DSP HEAVE	LIST OF OFFSET DATASETS	USCRIP 75
H HYDRO	POINTER TO MG DATASET	USCRIP 76
H PLFR	HEAVE PARAMETERS AS NEEDED	USCRIP 77
DSP MRCCM	FLAG TO TURN ON HYDRO MOTION OUTSIDE LA FIREBALLS	USCRIP 78
P	FLAG FOR STRIATION CALCULATION (INPUT YES OR NO)	USCRIP 79
DSP MRCCM	FB PRINTER PLOT FLAG (INPUT YES OR NO)	USCRIP 80
P	COLLECTION OF INITIALIZATION CONSTANTS FOR MRC LOW ALTITUDE	USCRIP 81
DSP MRCCM	FIREBALL MODEL.	USCRIP 82
P	COLLECTION OF INITIALIZATION CONSTANTS FOR MRC LOW ALTITUDE	USCRIP 83
H FBFLG	FIREBALL MODEL.	USCRIP 84
NEW AT	FLAG TO OUTPUT FB POSITION RELATIVE TO RADAR	USCRIP 85
I KTYPE	ATTACK GENERATION EVENT (TYPE 1)	USCRIP 86
R TIME	EVENT TYPE (=1 FOR THIS EVENT)	USCRIP 87
LHV LAUP	TIME OF THIS EVENT	USCRIP 88
LHV TARG	POINTER TO ATTACK TYPE DATASET	USCRIP 89
NEW E4	HEADER FOR LIST OF LAUNCH POINTS	USCRIP 90
I KTYPE	HEADER FOR LIST OF TARGET POINTS	USCRIP 91
R TIME	RADAR LOOK EVENT DATASET	USCRIP 92
DSP RADAR	EVENT TYPE (=4 FOR THIS EVENT TYPE)	USCRIP 93
DSP KORJT	TIME OF EVENT OCCURRENCE	USCRIP 94
DSP KTRAK	POINTER TO THE RADAR INVOLVED IN THIS EVENT	USCRIP 95
DSP PPOP	POINTER TO THE OBJECT INVOLVED IN THIS EVENT	USCRIP 96
DSP BSA	POINTER TO THE TRACK ARRAY FOR THIS RADAR/OBJECT PAIR	USCRIP 97
DSP SYSONT	PURPOSE OF EVENT (=INITIAL+SEARCH+VERIFY+TRACK IN+TRACK)	USCRIP 98
DSP POUT	POINTER TO PROPAGATION INPUTS DATASET	USCRIP 99
DSP DSCDM	POINTER TO RADAR SIGNAL PROCESSING DATASET	USCRIP 100
DSP SPIN	POINTER TO SYSTEM OUTPUT DATASET (SO)	USCRIP 101
DSP SPOUT	POINTER TO DISCRIMINATION INPUT DATASET (DI)	USCRIP 102
DSP REPRP	SIGNAL PROCESSING INPUTS DATASET (SI)	USCRIP 103
	POINTER TO RP DATASET	USCRIP 104
		USCRIP 105
		USCRIP 106

R DSCM INITIAL TIME FOR DISCRIMINATION FOR THIS OBJECT FOR THIS RADAR
 I IFLAG OVERLAY FLAG
 I IFATL PROPAGATION FAILURE MODE FLAG
 DSP DSPOL POINTER TO REAL TARGET OF INTEREST
 DSP DSPTI POINTER TO TARGET IMAGE OF INTEREST
 I NP NUMBER OF PROPAGATION PATHS
 R CSXI COSINE OF ANGLE BETWEEN LOS AND VELOCITY
 DSP DSPSO POINTER TO SYSTEMS OUTPUT DATASET(SO)
 R3 KLOS LINE OF SIGHT
 NEW TF DATA REQUIRED TO IMPLEMENT THE KALMAN FILTER
 R RMUL BETA MULTIPLIER AT START
 R3 PFIL DECAY TIME PARAMETERS FOR FILTER (TAU1,TAU2,M SUB TAU)
 R RM5IG BETA MULTIPLIER SIGMA AT START
 R BMDOT BETA MULTIPLIER DOT-- RUNNING UNCERTAINTY SIGMA
 DSP BETA POINTER TO TABULATED BETA VS. ALTITUDE
 NEW LP LAUNCH POINT DATASET
 H NAME NAME OF THE LAUNCH POINT
 R3 POS LOCATION OF THE LAUNCH POINT
 DSP RTYPE POINTER TO THE BOOSTER TYPE ASSOCIATED WITH POINT.
 I NB00S NUMBER OF AVAILABLE BOOSTERS AT THIS LAUNCH POINT.
 I NLAUN COUNTER OF NUMBER LAUNCHED SO FAR FROM THIS POINT.
 NEW RT RADAR TYPE DATASET
 H NAME NAME OF RADAR TYPE
 H KSTAK FLAG FOR BEAM STACKING (STACKED OR NONSTACKED)
 DSP NOISE POINTER TO EROR COEFF. FOR THIS RADAR TYPE
 DSP TRAN POINTER TO TRANSMIT BEAM SHAPE MODEL
 DSP REC POINTER TO RECEIVE BEAM SHAPE MODEL
 DSP SHODE POINTER TO SEARCH MODE RADAR PARAMETERS DATASET
 DSP THODE POINTER TO TRACK MODE RADAR PARAMETERS DATASET
 R FREQ RADAR FREQ. IN MEGAHERTZ
 R TEMP SYSTEM TEMPERATURE (DEG K)
 R HLMH HORIZON LIMIT FOR LOW VIEWING ANGLES
 R OFBGR OFF BORESIGHT ANGULAR LIMIT
 H POLAR ANTENNA POLARIZATION INDEX (LINEAR OR NON-LINEAR)
 NEW SW SEARCH MODE DATASET
 R RSO RANGE ON ONE SQUARE METER
 R THRES S/N THRESHOLD FOR DET. + VERIF.
 R DELAT DELAY BETWEEN AGO + TRACK
 H KRACO FLAG FOR FRAME RANDOMIZATION (RANDOM OR NONRANDOM)
 R ALTHI UPPER LIMIT IN ALT
 R ALTLO LOWER LIMIT IN ALT
 R RANHI OUTER LIMIT IN RANGE
 R RANLO INNER LIMIT IN RANGE
 R ACSN FRAME TIME OF SEARCH SCAN TIMES
 R VTME VERIFY PULSE TIME INTERVAL
 R ELBOT BOTTOM ELEVATION
 R ELTOP UPPER ELEVATION
 R HAFZ SIDE HALF-AZIMUTH
 R BANON NOISE BANDWIDTH FOR SEARCH WAVE FORM
 R BANDS SIGNAL BAND WIDTH FOR SEARCH WAVE FORM
 R FPC PULSE COMPRESSION RATIO FOR GIVEN WAVEFORM
 R SSL CONSTANT RANGE SIDELobe LEVEL RELATIVE UNITY AT PEAK OF AMBIGUITY FUNCTION

DSCRIP 107
 DSCRIP 108
 DSCRIP 109
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I KFLAG
 NEW P1
 H KTYPE
 R3 POS
 NEW RR
 H TACO
 R3 RVEC
 P
 NEW B1
 H MODEL
 H KTYPE
 R BEHW
 R HBEHW
 R HBEHV
 R SS
 R DSS
 NEW RE
 R3 FIXE
 R3 SNE
 R3 RIAS
 R
 P
 NEW LE
 I KTYPE
 R TIME
 DSP LPNT
 DSP TRGT
 R10 ORBEL
 R T1MP
 R DOWN
 R CROSS
 NEW IE
 I KTYPE
 R TIME
 DSP OBJCT
 NEW TK
 R TIME
 R3 POSIT
 R3 VELOC
 R BHUL
 R49 COVAR
 NEW FL
 DSP OBJ
 LHV RAD
 DSP FILF
 K4 START
 NEW B4
 I KTYPE
 R BETA
 NEW B3
 I KTYPE
 R OMASS
 R BETA

SYSTEMS OPTION FLAG(=1/HO TRACK SIMULATION)
 PLATFORM TYPE-1 (FIXED) DATASET
 PLATFORM TYPE (ALWAYS -FIXED- FOR A FIXED PLATFORM)
 PLATFORM POSITION
 BORESIGHT DATASET
 FLAG-YES-IF ACQ ALLOWED WITH THIS FACE
 BORESIGHT VECTOR
 ETC IN GROUPS OF FOUR FOR AS MANY AS RADAR HAS FACES
 RADAR BEAMSHAPE MODEL-1 DATASET
 NAME OF MODEL - (ON/OFF)
 BEAM SHAPE FLAG (CIRCULAR OR ELLIPTICAL)
 BEAMWIDTH IN ANGULAR UNITS
 HALF BEAMWIDTH IN SINE SPACE
 FOR ELLIPTICAL BEAMS, THE HALF -V- WIDTH
 NEAR-IN ANGLE SIDELOBE LEVEL (DB)
 SLOPE OF THE SIDELOBE TAPER(NOT CURRENTLY USED)
 RADAR ERRORS DATASET
 FIXED PORTION OF THE ERROR IN R+SINA+SINB AND DOPPLER
 S/N DEPENDENT PORTION OF THE ABOVE ERRORS
 BIAS ERRORS IN THE SAME MEASUREMENTS
 SAME COLLECTION OF DATA AS THE ABOVE, FOR SECOND VIEWING MODE.
 ETC. AS NEEDED.
 LAUNCH EVENT DATASET
 EVENT TYPE - ALWAYS 2 FOR THIS EVENT
 TIME OF OCCURRENCE OF THIS EVENT
 POINTER TO THE LAUNCH POINT DATASET
 POINTER TO THE TARGET POINT DATASET
 A STANDARD TPAID ORBITAL ELEMENT ARRAY
 SCHEDULED IMPACT TIME
 STOCHASTIC DOWN RANGE IMPACT ERROR
 STOCHASTIC CROSS RANGE IMPACT ERROR
 IMPACT EVENT DATASET
 EVENT TYPE - ALWAYS 3 FOR THIS EVENT
 TIME OF IMPACT
 POINTER TO OBJECT
 TRACK FILTER DATASET FOR THE EXTENDED KALMAN FILTER
 TIME OF APPLICABILITY OF CURRENT STATE VECTOR
 PREDICTED POSITION
 PREDICTED VELOCITY
 PREDICTED BETA MULTIPLIER
 CURRENT COVARIANCE MATRIX
 TRACKFILE DATA SET (FOR C/C ORGANIZATION)
 POINTER TO THE OBJECT INVOLVED
 LIST OF RADARS CONTRIBUTING MEASUREMENTS TO THIS TRACK FILE
 POINTER TO THE FILTER DATA BEING GENERATED
 TIME OF TRACK INITIATION FOR THIS TRACK FILE
 BETA MODEL 1 - CONSTANT VALUE DATASET
 BETA MODEL 1 - CONSTANT VALUE DATASET
 MODEL TYPE (KTYPE=1)
 VALUE OF BETA
 BETA MODEL 3 - CONE DYNAMIC
 MODEL TYPE (KTYPE=3)
 OBJECT MASS
 OBJECT REFERENCE AREA

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NEW T1	I KTYPE	TUMBLING MODEL 1 + 2	DSCRIP 216
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I	I FIRST	FIRST CALL FLAG	DSCRIP 218
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I	I FIRST	MODEL TYPE	DSCRIP 230
I	I FIRST	N-VALUE OF N-POINT INTERPOLATION (2=LINEAR)	DSCRIP 231
I	I FIRST	NUMBER OF POINTS IN TABLE	DSCRIP 232
I	I FIRST	ALTITUDE-MULTIPLIER(ON RCS) PAIR 1	DSCRIP 233
R2	ANPRC	ALTITUDE-MULTIPLIER(ON RCS) PAIR 2	DSCRIP 234
R	P	AND SO ON	DSCRIP 235
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I	I FIRST	VALUE	DSCRIP 238
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I	I FIRST	MODEL TYPE (KTYPE=2)	DSCRIP 240
I	I FIRST	NUMBER OF DATA PAIRS IN TABLE	DSCRIP 241
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I	I FIRST	MODEL TYPE (KTYPE=3)	DSCRIP 247
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R	TRAD	TANK RADIUS	DSCRIP 249
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R	SRATE	SPIN RATE	DSCRIP 254
R	CONA	CONSTANT A	DSCRIP 255
R	CONB	CONSTANT B	DSCRIP 256
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R2	R2	PHI-GAMMA PAIR 2	DSCRIP 262
R2	R2	PHI-GAMMA PAIR 3	DSCRIP 263
P	P	AND SO ON	DSCRIP 264
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R	BANDS	SIGNAL BANDWIDTH FOR TRACK WAVEFORM	DSCRIP 274
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R	DRI	RANGE RESOLUTION WIDTH FOR CHIRPED PULSE ($2 \cdot DRO/F \cdot SUB \cdot PC$)	DSCRIP 280
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R	RC	RANGE TO CENTER OF RECEIVED RANGE GATE	DSCRIP 286
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LHV	LIST	LIST OF TARGET IMAGES WHICH CONTRIBUTE TO SIGNAL	DSCRIP 288
LHV	GLIS	LIST OF CLOSE-TARGET-GROUPS	DSCRIP 289
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R	FD BAR	EXPECTED DOPPLER SHIFT TO WHICH RECEIVER FILTER IS MATCHED	DSCRIP 291
R	SOPR	SIGNAL PARAMETER	DSCRIP 292
NEW	RL	REAL TARGETS DATASET	DSCRIP 293
DSP	KOBJT	POINTER TO OBJECT CORRESPONDING TO TARGET	DSCRIP 294
R	RUV	CURRENT TIME COORDINATES OF TARGET ($R \cdot UV \cdot V$)	DSCRIP 295
R	SIGMA	CURRENT TARGET CROSSSECTION	DSCRIP 296
R	FD	CURRENT TARGET DOPPLER SHIFT	DSCRIP 297
R	OFFAX	CURRENT TIME ANGLE OFF BEAM AXIS	DSCRIP 298
R	X	PARAMETER ($SIGMA/R \cdot R \cdot R \cdot R$)	DSCRIP 299
H	IFIT	FLAG INDICATING THIS IS (IS NOT) PRIMARY TARGET OF INTEREST	DSCRIP 300
NEW	TI	TARGET IMAGES DATASET	DSCRIP 301
DSP	KOBJT	POINTER TO OBJECT CORRESPONDING TO THIS IMAGE	DSCRIP 302
R	RUVPR	CURRENT APPARENT COORDINATES OF IMAGE ($R \cdot UV \cdot V - PRIME$)	DSCRIP 303
R	SIGMA	CURRENT EFFECTIVE TARGET CROSSSECTION	DSCRIP 304
R	FD	CURRENT DOPPLER SHIFT	DSCRIP 305
R	OFFAX	CURRENT APPARENT ANGLE OFF BEAM AXIS	DSCRIP 306
R	X	PARAMETER ($SIGMA \cdot R \cdot R \cdot R \cdot R \cdot R - PRIME$)	DSCRIP 307
H	IFIT	FLAG INDICATION PRIMARY TARGET OF INTEREST	DSCRIP 308
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DSP	MEASF	MEASUREMENT OUTPUT FORMAT	DSCRIP 312
DSP	TFOTF	TRACK FILTER OUTPUT FORMAT	DSCRIP 313
DSP	PROPF	PROPAGATION OUTPUT FORMAT	DSCRIP 314
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DSP	FBOJUT	FIREBALL POSITION OUTPUT FORMAT	DSCRIP 316
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LHV F93	LIST OF F3 DATASETS	DSCRIP 320
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LHV D01	LIST OF D1 DATASETS	DSCRIP 322
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DSP F1F	DEBRIS SET-1 FORMATS	DSCRIP 330
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DSP C0F	CHEMISTRY OUTPUT FORMATS	DSCRIP 332
DSP I0RPH	POINTER TO THE FORMAT DATASET FOR GRAPHICAL OUTPUT AS PRINTERPLOTS	DSCRIP 333
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NEW F0	FIREBALL POSITION OUTPUT DATASET	DSCRIP 335
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I INDXF	FIREBALL INDEX	DSCRIP 337
R3 RAEFB	FIREBALL POSITION IN RAE	DSCRIP 338
R ANG	ANGULAR EXTENT OF FIREBALL	DSCRIP 339
R RNC	RANGE EXTENT OF FIREBALL	DSCRIP 340
R RNCFL	RANGE SELL OF RADAR	DSCRIP 341
R CTN	CLUTTER TO NOISE RATIO	DSCRIP 342
R ABS	INCREMENTAL ABSORPTION	DSCRIP 343
NEW B0	BURST PARAMETERS	DSCRIP 344
R TIME	OUTPUT TIME (SEC)	DSCRIP 345
R ETGAD	TOTAL WEAPON ENERGY (ERGS)	DSCRIP 346
R EFGAD	FISSION ENERGY (ERGS)	DSCRIP 347
R HB	HEIGHT OF BURST (CM)	DSCRIP 348
R RHOR	DENSITY AT BURST POINT (GM/CC)	DSCRIP 349
R HSR	SCALE HEIGHT AT BURST POINT (CM)	DSCRIP 350
R TEMR	TEMPERATURE AT BURST POINT (DEG K)	DSCRIP 351
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R TEOM	TIME TO REACH 2000 DEG TEMPERATURE (SEC)	DSCRIP 353
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R R1F	HORIZONTAL RADIUS (CM)	DSCRIP 358
R R1F	VERTICAL RADIUS (CM)	DSCRIP 359
R R1F	ALTITUDE OF FIREBALL CENTER (CM)	DSCRIP 360
R R1F	RISE RATE (CM/SEC)	DSCRIP 361
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R R1F	FIREBALL DENSITY AT BOTTOM OF FIREBALL (GM/CC)	DSCRIP 363
R R1F	FIREBALL TEMPERATURE (DEG K)	DSCRIP 364
R R1F	TIME SINCE BURST (SEC)	DSCRIP 365
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R RANGE	TYPE OF POINT REQUESTED	DSCRIP 411
H TYPE	ELECTRON DENSITY	DSCRIP 412
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R ENP	TEMPERATURE	DSCRIP 414
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R RHO	THICKNESS OF STEEP TEMPERATURE GRADIENT REGION	DSCRIP 416
R DBPM	REFLECTION COEFFICIENT	DSCRIP 417
R XB	AMPLITUDE REFLECTION COEFFICIENT INCLUDING ABSORPTION	DSCRIP 418
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I	INDX3		DSCRIP	453
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R	FREQ	FREQUENCY FOR OBPKM CALCULATION	DSCRIP 489
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NEW	DI	DISCRIMINATION INPUT DATASET	DSCRIP 499
H	KTYPE	DISCRIMINATION TYPE (FFL, WBL)	DSCRIP 500
R	FROMX	MAXIMUM FREQUENCY (=FREQ FOR WBL)	DSCRIP 501
R	FROMN	MINIMUM FREQUENCY (FOR FFL ONLY)	DSCRIP 502
R	XLNTH	BODY LENGTH	DSCRIP 503
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R	HFF	ALTITUDE BELOW WHICH 'F' CANNOT BE PERFORMED	DSCRIP 505
R	TID	TOTAL DISCRIMINATION TIME	DSCRIP 506
R	RWB	RANGE ABOVE WHICH WB CANNOT BE PERFORMED	DSCRIP 507
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NEW	DO	DISCRIMINATION OUTPUT DATASET	DSCRIP 509
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R	SIGL	STANDARD DEVIATION OF LENGTH	DSCRIP 513
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NEW	E8	BURST EVENT DATASET	DSCRIP 517
I	KTYPE	EVENT TYPE - FIVE FOR THIS EVENT	DSCRIP 518
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DSP	BTTYPE	POINTER TO BOMB TYPE DATASET	DSCRIP 521
NEW	BB	BOMB TYPE DATASET	DSCRIP 522
H	NAME	NAME OF BOMB TYPE	DSCRIP 523
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R	FH	HYDRO FRACTION	DSCRIP 526
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R	FX	RAY FRACTION	DSCRIP 528
R	FTPH	FRACTION MATERIAL FISSIONABLE WITH THERMAL NEUTRONS	DSCRIP 529
R	FG	GAMMA FRACTION	DSCRIP 530

R WMASS WEAPON MASS (GM)
 R FHAL MASS FRACTION OF ALUMINUM
 R FHLT MASS FRACTION OF LITHIUM
 R FMF MASS FRACTION OF IRON
 R FMU MASS FRACTION OF URANIUM
 DSP SPCTD POINTER TO THE DEVICE DEPENDENT DATA REGARDING SPECTRAL DIS-
 P TRIBUTION OF ENERGY OUTPUT.
 DSP SPCTI POINTER TO THE DEVICE INDEPENDENT DATA FOR DEFINING THE SPECTRAL
 P DISTRIBUTION OF THE WEAPON ENERGY OUTPUT.
 NEW JX WEPN. INDEP. INPUT DATA FOR X-RAY DEPOSITION CALCULATIONS
 R15 PHXR NORMALIZED AIR MASS PENETRATED ARRAY FOR WHICH ENERGY
 P DEPOSITION PARAMETERS WILL BE PRE-COMPUTED
 NEW JG WEPN. INDEP. INPUT DATA FOR GAMMA DEPOSITION CALCULATIONS
 R15 PHG PENETRATED AIR MASS ARRAY FOR WHICH ENERGY DEPOSITION
 P PARAMETERS WILL BE PRE-COMPUTED (GM/CM2)
 NEW JN WEPN. INDEP. INPUT DATA FOR NEUTRON DEPOSITION CALCULATIONS
 R15 PHN AIR MASS PENETRATED ARRAY FOR WHICH ENERGY DEPOSITION
 P PARAMETERS WILL BE PRE-COMPUTED (GM/CM2)
 R14 CHB NONUNIFORM AIR CORRECTION FACTOR FOR ENL (K) NEUTRON
 P MEAN FREE PATHS ABOVE BURST POINT
 R14 CHD NONUNIFORM AIR CORRECTION FACTOR FOR ENL (K) NEUTRON
 P MEAN FREE PATHS ABOVE DEPOSITION POINT
 R14 ENL MEAN FREE PATH ARRAY FOR WHICH CORRECTION FACTORS WILL
 P BE PRE-COMPUTED
 NEW 2X WEPN. INDEP. INPUT DATA FOR X-RAY CALCS. (INITIALIZATION)
 R18 PHXJ NORMALIZING AIR MASS PENETRATED FOR EACH ENERGY GROUP (GM/CM2)
 R15 PHXJR NORMALIZED AIR MASS PENETRATED FOR UX(J,K) ARRAY
 R270UX NORMALIZED ENERGY DEPOSITION COEFFICIENT ARRAY FROM ATR CODE
 P FIFTEEN VALUES GIVEN FOR EACH ENERGY GROUP, CORRESPONDING TO
 P THE FIFTEEN VALUES OF NORMALIZED AIR MASS PHXJR ABOVE
 NEW 2G WEPN. INDEP. INPUT DATA FOR GAMMA CALCS. (INITIALIZATION)
 R270UG ENERGY DEPOSITION COEFFICIENT ARRAY FROM ATR CODE (CM2/GM)
 P FIFTEEN VALUES GIVEN FOR EACH ENERGY GROUP, CORRESPONDING TO
 P THE FIFTEEN VALUES OF AIR MASS PENETRATED GIVEN ABOVE.
 NEW 2N WEPN. INDEP. INPUT DATA FOR NEUTRON CALCS. (INITIALIZATION)
 R18 EBAPN AVERAGE ENERGY FOR EACH OF 18 SPECTRAL ENERGY GROUPS (MEV)
 R18 SIGN EFFECTIVE NEUTRON CROSS SECTION AT EACH ENERGY (CM2/GM)
 R270UN ENERGY DEPOSITION COEFFICIENT ARRAY FROM ATR CODE (CM2/GM)
 P FIFTEEN VALUES GIVEN FOR EACH ENERGY GROUP, CORRESPONDING TO
 P THE FIFTEEN VALUES OF AIR MASS PENETRATED GIVEN ABOVE.
 NEW 3X CALCULATED WEPN. DEP. DATA FOR X-RAY DEPOSITION
 R YIELD FRACTION IN X-RAYS
 R FEDX NORMALIZING AIR MASS PENETRATED FOR THIS WEAPON (GM/CM2)
 R PHXR X-RAY ENERGY DEPOSITION INTEGRAL FOR WEAPON TYPE
 R15 UBAPX AT MASS DEPTH PHXBAR(1)*PHXR(K) (CM2/GM)
 P X-RAY ENERGY CONTAINMENT FOR WEAPON TYPE WITHIN
 R15 FCNTX MASS DEPTH PHXBAR(1)*PHXR(K)
 P CALCULATED WEPN. DEP. DATA FOR GAMMA DEPOSITION
 NEW 3G YIELD FRACTION IN PROMPT GAMMA RAY ENERGY
 R FEDG FRACTION MATERIAL FISSIONABLE WITH THERMAL NEUTRONS
 R FTHM PROMPT GAMMA RAY ENERGY DEPOSITION INTEGRAL FOR
 R15 UBRGP DEVICE TYPE 1 AT MASS DEPTH PHN(K) (CM2/GM)
 P DELAYED GAMMA RAY ENERGY DEPOSITION INTEGRAL FOR
 R15 UBRGD

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P NEW 3N
 R FEON
 R SOMAN
 P R15 UBRNP
 P R15 UBRNC
 P R15 XPONE
 P NEW DV
 P
 P
 P
 P
 H INFLG
 DSP N1
 DSP G1
 DSP X1
 DSP NEUT
 DSP GAMMA
 DSP XRAY
 NEW 4X
 R14 SPECX
 NEW 4G
 R18 SPECG
 R18 SPECQ
 NEW 4N
 R18 SPECN
 NEW SC
 DSP NEUT1
 DSP NEUT2
 DSP XRAY1
 DSP XRAY2
 DSP GAM1
 DSP GAM2
 NEW P1
 R ELEV
 R SHAX
 R3 UNITS
 LHV WPLIS
 LHV PSLIS
 NEW AP
 R3 POINT
 R RANGE
 DSP DSPFB
 P SK1
 R SK2
 NEW PS
 R ED
 DSP FB
 NEW GR
 LHV LISTG

DEVICE TYPE 1 AT MASS DEPTH PM(K) (CM2/GM)
 CALCULATED WEPN. DEP. DATA FOR NEUTRON DEPOSITION
 YIELD FRACTION IN DEPOSITED NEUTRON ENERGY
 MEAN TOTAL CROSS SECTION FOR DEVICE TYPE (CM2/GM)
 PROMPT NEUTRON ENERGY DEPOSITION INTEGRAL FOR DEVICE
 TYPE AT MASS DEPTH PM(K) (CM2/GM)
 NEUTRON CAPTURE ENERGY DEPOSITION INTEGRAL FOR DEVICE
 TYPE AT MASS DEPTH PM(K) (CM2/GM)
 NEUTRON ELASTIC SCATTER ENERGY DEPOSITION TIME-
 DEPENDENT EXPONENT FOR DEVICE TYPE AT MASS DEPTH PM(K)
 DEVICE DATA-- WEAPON DEPENDENT OUTPUT SPECTRA
 -----NOTE THAT THESE ARRAYS WILL BE DESTROYED AND REPLACED DURING
 THE INITIALIZATION PROCESS. INPUT AS 4N*6G, AND 4X
 TYPE DATASETS, AFTER INITIALIZATION WILL BE 3N*3G, AND
 3X, RESPECTIVELY.
 = -SHSTART- AT BEGINNING- SET TO -4HDONE- AFTER INITIALIZATION
 NEUTRON INPUT DATA
 GAMMA INPUT DATA
 XRAY INPUT DATA
 POINTER TO NEUTRON DATA ARRAYS
 POINTER TO GAMMA DATA ARRAYS
 POINTER TO X-RAY DATA ARRAYS
 X-RAY WEPN. DEPENDENT DATA FOR INITIALIZATION ONLY.
 X-RAY SPECTRUM (ENERGY IN EACH OF 18 ENERGY GROUPS, MEV)
 GAMMA WEPN. DEPENDENT DATA FOR INITIALIZATION ONLY.
 PROMPT GAMMA SPECTRUM (ENERGY IN EACH OF 18 ENERGY GROUPS*MEV)
 DELAYED GAMMA SPECTRUM (ENERGY IN EACH OF 18 ENERGY GROUPS*MEV)
 NEUTRON WEPN. DEPENDENT DATA FOR INITIALIZATION ONLY.
 NEUTRON SPECTRUM (NO. IN EACH OF 18 ENERGY GROUPS)
 WEAPON INDEPENDENT SPECTRAL ENERGY DISTRIBUTION DATA
 NEUTRON DATA, NEEDED DURING ENTIRE CALCULATIONS
 NEUTRON DATA, NEEDED ONLY DURING INITIALIZATION
 X-RAY DATA NEEDED DURING ENTIRE CALCULATION
 X-RAY DATA NEEDED ONLY DURING INITIALIZATION
 GAMMA DATA NEEDED DURING ENTIRE CALCULATION
 GAMMA DATA NEEDED ONLY DURING INITIALIZATION
 PROPAGATION INPUTS DATASET
 ELEVATION OF RADAR LOS
 RANGE FROM RADAR TO TARGET
 UNIT VECTOR ALONG RADAR LOS
 MANDATORY POINT LIST
 PROMPT SOURCES LIST HEADER
 MANDATORY POINT DATASET
 POINT OF CLOSEST APPROACH TO FIREBALL
 RANGE FROM RADAR TO POINT
 POINTER TO FIREBALL DATASET
 PROMPT SOURCES DATASET
 ENERGY DEPOSITION AT POINT DUE TO THIS FIREBALL
 POINTER TO FIREBALL DATASET ASSOCIATED WITH ED
 TARGET GROUP DATASET
 LIST HEADER TO TARGET IMAGES IN THIS CLOSE-TARGET GROUP

DSCRP 584
 DSCRP 585
 DSCRP 586
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 DSCRP 633
 DSCRP 634
 DSCRP 635
 DSCRP 636

NEW SO	SYSTEM OUTPUT DATASET	DSCRIP 637
H OBJECT	NAME OF OBJECT	DSCRIP 638
H SENSR	NAME OF SENSER	DSCRIP 639
LHV TRAJ	TRAJECTORY OUTPUT LIST (TR)	DSCRIP 640
LHV MEAS	MEASUREMENT ERRORS OUTPUT LIST (ME)	DSCRIP 641
LHV TROUT	TRACK FILTER OUTPUT LIST (TO)	DSCRIP 642
LHV PROP	PROPAGATION OUTPUT LIST (PP)	DSCRIP 643
LHV DSOUT	DISCRIMINATION OUTPUT LIST (DO)	DSCRIP 644
LHV FBPOS	LIST OF FB POSITION DATASETS RELATIVE TO RADAR (FP)	DSCRIP 645
NEW TR	TRAJECTORY OUTPUT DATASET	DSCRIP 646
M KTYPE	EVENT TYPE (SEARCH, VERIFY, TRACK INITIATION, TRACK)	DSCRIP 647
R TIME	TIME OF OUTPUT	DSCRIP 648
R ALT	ALTITUDE	DSCRIP 649
R3 RAE	RANGE, AZIMUTH, ELEVATION	DSCRIP 650
R VEL	VELOCITY	DSCRIP 651
R STNC	SIGNAL TO NOISE PLUS CLUTTER RATIO	DSCRIP 652
I NTARG	NUMBER OF TARGETS IN RANGE CELL	DSCRIP 653
NEW ME	TRACK MEASUREMENT ERRORS DATASET	DSCRIP 654
R TIME	TIME OF OUTPUT	DSCRIP 655
R3 RAEPR	PREDICTED TARGET COORDINATES IN RAE	DSCRIP 656
R3 RHEAS	RANGE ERRORS IN RAE COORDINATES	DSCRIP 657
R3 ERROR	RANDOM ERRORS IN RAE COORDINATES	DSCRIP 658
NEW TO	TRACK FILTER OUTPUT DATASET	DSCRIP 659
R TIME	TIME OF OUTPUT	DSCRIP 660
R6 ERROR	SIX VECTOR OF POSITION AND VELOCITY ERRORS, IN LOCAL VELOC.	DSCRIP 661
P	ORIENTED COORD. SYSTEM	DSCRIP 662
R3 RAEPR	APPARENT TARGET POSITION	DSCRIP 663
NEW PP	PROPAGATION OUTPUT DATASET	DSCRIP 664
R TIME	TIME OF OUTPUT	DSCRIP 665
R DBSJM	ABSORPTION FROM ALL SOURCES	DSCRIP 666
R DBMAX	THRESHOLD ABSORPTION	DSCRIP 667
R RNTMP	NOISE TEMPERATURE	DSCRIP 668
R RNPWR	RNPWR POWER	DSCRIP 669
R CLUTR	CLUTTER POWER	DSCRIP 670
R6 REFPC	BIAS AND RANDOM REFRACTION ERRORS IN RAE COORD.	DSCRIP 671
R DISP	DISPERSIVE LOSS	DSCRIP 672
R FARAD	FARADARY ROTATION LOSS	DSCRIP 673
R FAIL	FAILURE MODE	DSCRIP 674
R SIGRR	SCALING FACTOR ON SIGMA FOR SPREAD TARGET CLOUD	DSCRIP 675
R XHU	ANGLE BETWEEN MAJOR AXIS OF ELLIPSE AND U-COORD IN RUW	DSCRIP 676
NEW CT	HEAVE PARAMETERS DATASET	DSCRIP 677
R HARBOT	BOTTOM ALTITUDE OF GRID	DSCRIP 678
R3 POS	POSITION OF ORIGIN OF GRID	DSCRIP 679
R DELX	ANGULAR WIDTH OF CELLS IN X DIRECTION	DSCRIP 680
R DELY	ANGULAR WIDTH OF CELLS IN Y DIRECTION	DSCRIP 681
I NCELZ	NUMBER OF VERTICAL CELLS	DSCRIP 682
I NXP	NUMBER OF CELLS IN POSITIVE X-DIRECTION	DSCRIP 683
I NXM	NUMBER OF CELLS IN NEGATIVE X-DIRECTION	DSCRIP 684
I NYP	NUMBER OF CELLS IN POSITIVE Y-DIRECTION	DSCRIP 685
I NYM	NUMBER OF CELLS IN NEGATIVE Y-DIRECTION	DSCRIP 686
R AZIM	AZIMUTH OF POSITIVE X-AXIS (CW FROM NORTH)	DSCRIP 687
P	(NOTE-- BY INPUTTING THE WORD MAGNETIC THE NEGATIVE X-AXIS IS ALIGNED WITH MAGNETIC NORTH)	DSCRIP 688
P		DSCRIP 689

I	NUMCEL	NUMBER OF CELLS USED IN ION HEAVE	DSCRIP 690
R	TOLD	LAST CALCULATION TIME	DSCRIP 691
R	TNEW	NEW CALCULATION TIME	DSCRIP 692
I	IXPLD	FLAG INDICATING BURST HAS JUST OCCURRED(=1)/ OTHERWISE(=0)	DSCRIP 693
I	INCHK	FLAG TO TURN ON ENERGY CHECK (1=YES,0=NO)	DSCRIP 694
I	IRZN	FLAG FOR TURNING ON REZONE(=1)/ NO(=0)	DSCRIP 695
R20	DELMA	INITIAL CELL HEIGHTS	DSCRIP 696
R	HMAX	MAX ALTITUDE BEFORE REZONE	DSCRIP 697
NEW	HI	HIGH ALTITUDE BURST EVENT DATASET	DSCRIP 698
I	KTYPE	TYPE OF THIS EVENT (12)	DSCRIP 699
R	TIME	TIME OF THIS EVENT	DSCRIP 700
DSP	DSPFB	POINTER TO FIREBALL FOR THIS EVENT	DSCRIP 701
I	IFLAG	OVERLAY FLAG	DSCRIP 702
NEW	SI	SIGNAL PROCESSING INPUTS	DSCRIP 703
R	TIME	TIME FOR THIS LOOK	DSCRIP 704
R	FREQ	RADAR FREQUENCY	DSCRIP 705
R10	RADP	RADAR POSITION	DSCRIP 706
R3	BVEC	BORESIGHT VECTOR	DSCRIP 707
R	BEW	RADAR BEAMWIDTH	DSCRIP 708
R	BS	SIGNAL BANDWIDTH	DSCRIP 709
R	BN	NOISE BANDWIDTH	DSCRIP 710
R	FPC	PULSE COMPRESSION RATIO	DSCRIP 711
R	SL	RANGE SIDELobe REDUCTION FACTOR	DSCRIP 712
R	SN	SIGNAL-TO-NOISE THRESHOLD	DSCRIP 713
R	RSQ	RANGE ON ONE SQUARE METER TARGET	DSCRIP 714
NEW	SP	SIGNAL PROCESSING OUTPUTS	DSCRIP 715
R	Y	TRIAL SIGNAL-TO-NOISE LEVEL	DSCRIP 716
R	XT	TOTAL NOISE PLUS CLUTTER POWER	DSCRIP 717
R	SI	RECEIVED SIGNAL POWER INCLUDING LOSSES	DSCRIP 718
R	XLOW	MAXIMUM ABSORPTION PARAMETER	DSCRIP 719
R3	PUV1	ACTUAL TARGET COORDINATES	DSCRIP 720
R	ZO	SIGNAL-TO-(NOISE+CLUTTER)	DSCRIP 721
R3	PUVPR	APPARENT TARGET POSITION	DSCRIP 722
I	IFDET	TARGET DETECTION PARAMETER	DSCRIP 723
NEW	RP		DSCRIP 724
R3	PT	POINT OF INTEREST	DSCRIP 725
R	OSINC	INCREMENTAL RANGE FOR RAY TRACE	DSCRIP 726
R	TEMP	TEMPERATURE AT POINT	DSCRIP 727
R	RHOD	DENSITY AT POINT	DSCRIP 728
R	ENE	ELECTRON DENSITY AT POINT	DSCRIP 729
R	DEL4Z	ELECTRON DENSITY GRADIENT IN AZIMUTH	DSCRIP 730
R	DELFL	ELECTRON DENSITY GRADIENT IN ELEVATION	DSCRIP 731
R	VNEUT	NEUTRAL COLLISION FREQUENCY	DSCRIP 732
R	VION	ION COLLISION FREQUENCY	DSCRIP 733
R3	DR	DELTA CHARGE IN RANGE, AZIMUTH AND ELEVATION	DSCRIP 734
R	DINC	INCREMENTAL RANGE IN FIELD DIRECTION	DSCRIP 735
R	SIZE	CHARACTERISTIC STRIATION SIZE	DSCRIP 736
R	RM0	STRIATION DENSITY (CM-2)	DSCRIP 737
R	ENO	PEAK ELECTRON DENSITY	DSCRIP 738
M	DIST	TYPE OF DISTRIBUTION	DSCRIP 739
R	SCAN	SCAN ANGLE LIMIT FOR STRIATIONS	DSCRIP 740
NEW	P2	PLATFORM TYPE 2 -- TRAID ORBITAL ELEMENTS	DSCRIP 741
M	KTYPE	PLATFORM MODEL TYPE (= 7HORIZONTAL)	DSCRIP 742

R10 ORREL	A TRAID 10-VECTOR OF ORBITAL ELEMENTS	DSCRIP 743
NEW P3	PLATFORM TYPE 3 FOR CIRCULAR ORBITS	DSCRIP 744
H KTYPE	PLATFORM MODEL TYPE (= BHCIRCULAR)	DSCRIP 745
R ATNC	INCLINATION OF ORBITAL PLANE	DSCRIP 746
R ALONG	LONGITUDE OF ASCENDING NODE (AS CALCULATED AT TIME BELOW)	DSCRIP 747
R OLOC	LOCATION IN ORBIT (AROUND FROM ASCENDING NODE)	DSCRIP 748
R TIME	TIME OF VALIDITY OF GIVEN DATA	DSCRIP 749
R PERI	PERIOD OF ORBIT	DSCRIP 750
NEW E9	PHYSICS SEQUENCE EVENT DATASET	DSCRIP 751
I KTYPE	EVENT TYPE (9 FOR THIS EVENT)	DSCRIP 752
R TIME	TIME OF THIS EVENT	DSCRIP 753
R TNEW	TIME OF PHYSICS UPDATE	DSCRIP 754
H KFLAG	TYPE OF PHYSICS UPDATE (LOW OR HIGH)	DSCRIP 755
NEW FB	FIREBALL DATASET	DSCRIP 756
H TYPE	HIGH OR LOW	DSCRIP 757
I KINDF	FIREBALL TYPE FLAG	DSCRIP 758
I INDYF	FIREBALL INDEX NUMBER	DSCRIP 759
R RTF	TRANSVERSE RADIUS	DSCRIP 760
R RLF	LATERAL RADIUS	DSCRIP 761
R3 FBPOS	FIREBALL POSITION	DSCRIP 762
R3 FBVEL	FIREBALL VELOCITY	DSCRIP 763
R HF	FIREBALL ALTITUDE	DSCRIP 764
R HDOT	RISE RATE	DSCRIP 765
R ROOT	EXPANSION RATE	DSCRIP 766
R RHOF	DENSITY AT A SPECIFIED POINT	DSCRIP 767
R MSF	DENSITY SCALE HEIGHT	DSCRIP 768
R TF	TEMPERATURE	DSCRIP 769
R SF	STRIATION FRACTION	DSCRIP 770
R TIME	BURST TIME	DSCRIP 771
R TSB	TIME SINCE BURST	DSCRIP 772
R HMINF	MIN ALTITUDE OF REGION	DSCRIP 773
R HMAXF	MAX ALTITUDE OF REGION	DSCRIP 774
R TILTF	TILT FROM VERTICAL	DSCRIP 775
R ROT	POTATION ANGLE OF AXIS FROM MAG NORTH	DSCRIP 776
R RVT	TRANSVERSE RADIUS OF VORTEX	DSCRIP 777
R RVL	LATERAL RADIUS OF VORTEX	DSCRIP 778
R VOV	VOLUME OF VORTEX	DSCRIP 779
R RVOL	PARAMETER USED IN OVAL OF CASSINI DEFINITION	DSCRIP 780
R RTREF	HORIZONTAL DISTANCE TO REFERENCE POINT IN OVAL (CH)	DSCRIP 781
R TVORT	VORTEX BOUNDARY TEMPERATURE (DEG K)	DSCRIP 782
P FE	ENTRAINMENT FACTOR	DSCRIP 783
R TCH4R	CHARACTERISTIC MERGING TIME	DSCRIP 784
I MFG1D	MERGE IDENTIFICATION	DSCRIP 785
DSP XM2G	DSP TO NEW FB DATASET	DSCRIP 786
DSP BTYPE	POINTER TO BOMB TYPE (BB)	DSCRIP 787
LHV DEBLS	DEBRIS LIST (DD)	DSCRIP 788
DSP DSPH2	POINTER TO FIREBALL PROPERTIES AT SOME FUTURE TIME	DSCRIP 789
DSP DSPH2	POINTER TO DUST DATASET (DS)	DSCRIP 790
DSP DSPH2	POINTER TO BURST PARAMETERS DATASET (BP)	DSCRIP 791
DSP DSPH2	POINTER TO FIREBALL STRIATION PARAMETERS DATASET (SR)	DSCRIP 792
DSP STRIA	SET TO -ORIGINAL- IF ORIGINALLY A DETONATION.	DSCRIP 793
H BURST	FIREBALL STRIATION PARAMETERS DATASET	DSCRIP 794
NEW SR	AVERAGE STRIATION SIZE	DSCRIP 795
R		

H	RMO	STRIATION DENSITY	DSCRIP 796
R	SCAN	SCAN ANGLE LIMIT	DSCRIP 797
NEW	DO	DEBRIS DATASET	DSCRIP 798
H	DLARL	DEBRIS TYPE	DSCRIP 799
I	1D7LG	FLAG DESIGNATING SHAPE	DSCRIP 800
R	ADR	YIELD (ERGS)	DSCRIP 801
R	RDR	ALTITUDE OF DEBRIS (CM)	DSCRIP 802
R	RTRS	HORIZONTAL RADIUS OF REGION (CM)	DSCRIP 803
R	RLRS	VERTICAL RADIUS OF REGION (CM)	DSCRIP 804
R	RNBS	DEBRIS DISTRIBUTION PARAMETER	DSCRIP 805
R	RTD	RADIUS OF EQUIVALENT SPHERE (CM)	DSCRIP 806
R	VOLD	DEBRIS VOLUME (CC)	DSCRIP 807
R3	DBPOS	DEBRIS POSITION	DSCRIP 808
R	TFZ	MAGNETIC FREEZING TIME	DSCRIP 809
DSP	DSPBT	POINTER TO BETA TUBE DATASET (BE)	DSCRIP 810
DSP	DSPFB	POINTER TO FIREBALL (FB)	DSCRIP 811
DSP	DSPD2	POINTER TO DEBRIS PROPERTIES AT FUTURE TIME (D2)	DSCRIP 812
DSP	DSPFO	POINTER TO OLD MERGED FIREBALL DATASET	DSCRIP 813
NEW	BE	BETA TUBE AND SHEATH DATASET	DSCRIP 814
H	TYPE	TUBE TYPE--STRAIGHT OR KINK	DSCRIP 815
R	RFAC	RADIUS FACTOR FOR SIZING OUTER BETA REGION	DSCRIP 816
R	ZI	INITIAL ALTITUDE	DSCRIP 817
R	THETA	INITIAL DIP	DSCRIP 818
R	PHI	KINK ANGLE WITH RESPECT TO HORIZONTAL	DSCRIP 819
R	EL	DISTANCE FROM SUB-BURST POINT TO KINK	DSCRIP 820
R3	BPBS	POSITION OF CENTRAL FIELD LINE AT 85KM	DSCRIP 821
R	RBSN	N-S RADIUS OF INNER REGION AT 85KM	DSCRIP 822
R	RBSF	E-W RADIUS OF INNER REGION AT 85KM	DSCRIP 823
R3	BP60	POSITION OF CENTRAL FIELD LINE AT 60KM	DSCRIP 824
R	R60N	N-S RADIUS OF INNER REGION AT 60KM	DSCRIP 825
R	R60E	E-W RADIUS OF INNER REGION AT 60KM	DSCRIP 826
R	FEI	FRACTION OF DEBRIS INSIDE SHEATH	DSCRIP 827
R	FE0	FRACTION OF DEBRIS INSIDE SHEATH	DSCRIP 828
R	DB	SHEATH THICKNESS	DSCRIP 829
R	XLO	PENETRATION DISTANCE OUTSIDE SHEATH	DSCRIP 830
R	BI	MAGNETIC FIELD STRENGTH INSIDE SHEATH	DSCRIP 831
NEW	BP	BURST PARAMETERS DATASET	DSCRIP 832
DSP	DSPFB	POINTER TO FIREBALL (FB)	DSCRIP 833
DSP	DSPFI	POINTER TO FIREBALL INTERACTIONS DATASET (FI)	DSCRIP 834
R3	P05	BURST POSITION	DSCRIP 835
R	MB	HEIGHT OF BURST (OR PRESENT ALT..) (HB)	DSCRIP 836
R	ETGAD	TOTAL YIELD IN ERGS	DSCRIP 837
R	EGAD	FISSION YIELD IN ERGS	DSCRIP 838
R	ENGAD	MUON YIELD IN ERGS	DSCRIP 839
R	ENGAD	NEUTRON YIELD IN ERGS	DSCRIP 840
R	EXGAD	XRAY YIELD IN ERGS	DSCRIP 841
R	F1	ENERGY FRACTION OF BURST 1	DSCRIP 842
R	F2	ENERGY FRACTION OF BURST 2	DSCRIP 843
R	RHOP	DENSITY FOR BURST 2	DSCRIP 844
R	ENRGY	TOTAL ENERGY IN 6TH BAND	DSCRIP 845
R	RHOR	APARENT RHO AT BURST PT.	DSCRIP 846
R	XSB	SCALE HT. AT BURST POINT	DSCRIP 847
R	TEH	AMBIENT TEMP AT BURST PT.	DSCRIP 848

58 FA

44 EB
47 EE
46 ED

R PH0 INITIAL HORIZONTAL RADIUS
R TEOM TIME TO REACH 2000 DEG FIREBALL TEMPERATURE
R TEON TIME TO REACH 3000 DEG FIREBALL TEMPERATURE
R RHOON FIREBALL DENSITY AT TEOM
R RHOON FIREBALL DENSITY AT TEON
R REFT REFERENCE TEMPERATURE OF STEEP GRADIENT REGION
R3 RVEC MAGNETIC FIELD VECTOR AT BURST POINT
I IC CELL INDEX IN X-DIRECTION
I JC CELL INDEX IN Y-DIRECTION
I KC CELL INDEX IN Z-DIRECTION
R FRCO FRACTION OF DISTANCE BETWEEN FB CENTER AND CELL BOTTOM
R XARG RATIO OF TEMPERATURE OF CELL TO INITIAL FB TEMPERATURE
P FIRST WORD IS THEIR -AA- WHICH IS TO (AND -BUF- WILL
P EVENTUALLY BE REPLACED BY -TO-) WHICH IS THE PRE-EXPANSION
P TIME TO TEMPERATURE EQUILIBRIUM FOR THE FIREBALL
P NOTE THAT -EG,CA,CB- OF THE EVASAY COMMON BLOCK HAVE BEEN
P RENAMED. CATCH ALL REFERENCES TO THEM IN THE CODE
P NUMBERS AND LETTERS IN THE RIGHT HAND MARGIN ARE THE LOCATIONS
P AND MNEMONICS FOR THE ORIGINAL MRC PROVIDED CODE
P TO (1-61)
P T1 (1-36)
P T2 (1-42) OR (1-50) SEC MOOLON.164, MR=4 CASE/P1-32
P T3 (1-52) END OF CONSTANT VELOCITY RADIAL EXPANSION PHASE 4
P T4 (1-57,1-58) END OF 3RD EXPANSION PHASE
P T5 = .. MOOLON.272
P TEO (1-51) TIME FOR MAG. CONTAINMENT
P TO -DWELL TIME- END OF UNIFORM ACCEL FROM 0 TO V0 RISE
P RATE (1-77A,B)
P TAU CHARACTERISTIC RISE TIME (1-75A,B)
P TAC (1-78) CENTER APOGEE TIME
P TT (PROB 17*) -- MOOLON.197 TORUS FORMATION TIME
P TMAX (TIME OF THERMAL MAXIMUM) (1-163)
P TAFZ (1-137ABC) ALT. -FREEZE- TIME BEFORE WHICH TO
P RISE OF BETA
P TRFZ
P INITIAL BLAST RADIUS (ERHO UNLESS MERGES OCCUR)
P RH0 HORIZONTAL MAG. CLAMENT RADIUS RH0(1-10)
P RO (1-16) (1-17) INITIAL DOWNWARD RADIUS
P RDM (1-22) DOWNWARD MAG. STOPPING RADIUS
P RU (1-26) INITIAL UPWARD RADIUS
P RUM (1-27) UPWARD MAG. STOPPING RADIUS
P RL1 (1-29) INITIAL VERT. RADIUS
P RL2 (1-30) INIT HORIZ. RADIUS -- SEE MR=4..ON P1-32
P RL3 (1-31) BUT SEE MOOLON.160 1-49--ALSO MR=4 ..P1-32
P RM MAGNETIC RADIUS (MR-LATE MAG.)
P RT3 (1-53) RADIUS AT T3(END OF COAST V. RADIAL
P EXPANSION PHASE.)
P RT4 (1-60) RAD. AT ALT. STABILIZATION TIME, T4
P RTMAX (1-164A,B) RAD. AT TIME OF THERMAL MAXIMUM
P ROERO (1-105) INIT. DERRIS RADIUS (AT T1)
P FUVT (1-73) TOTAL FRACT. OF HYD. ENERGY CONV. TO UV.
P FUVM (1-34) FRACTION HYDRO ENERGY CONVERTED TO UV IN
P HORIZ. DIRECTION.

1 AA
2 AB
3 AC
4 AD
5 AE
6 AF
7 AG
8 AH
9 AI
10 AJ
11 AK
12 AL
13 AM
14 AN
15 BA
16 BB
17 BC
18 BD
19 BE
20 BF
21 BG
22 BH
23 BI
24 BJ
25 BK
26 BL
27 BM
28 BU
29 CA
30 CB
31 CC

R	F3	FI (1-4) IONIZATION FRACTION	31 CC	DSCRIP 902
R	F4	FCEM (1-5) CHARGE EXCHANGE LOSS (HORIZONTAL)	32 CD	DSCRIP 903
R	F5	F CED (1-12,14) CHARGE EXCHANGE LOSS FRACTION (DOWN)	33 CE	DSCRIP 904
R	F6	F CEU (1-13,15) CHARGE EXCHANGE LOSS FRACTION (UP)	34 CF	DSCRIP 905
R	F7	MODLON.63	35 CG	DSCRIP 906
R	CX	CX OF (1-9) PRODUCED BY WOXCI(X=1-FCONT)	36 CH	DSCRIP 907
P		SURROUTING WITH PMASS=RHOB*RH	36 CM	DSCRIP 908
R	V0	V0(1-72) INITIAL RISE VELOCITY	37 DA	DSCRIP 909
R	VEXP	VEXP(61-29,1-29) EXP. RATE BETWEEN T2, T3	38 DB	DSCRIP 910
R	VW	VWIND(1-62A,B,C) FOR LATE BURSTS	39 DC	DSCRIP 911
R	V4	V4(1-62A, 64B, 65) LATE EXPANSION VELOCITY	40 DD	DSCRIP 912
R	VHEAV	UPWARD VELOCITY OF ATMOS. SET TO -0. IN MODLON.29	41 DE	DSCRIP 913
R	VF	VA VELOCITY OF EXPANSION ALONG MAG. FIELD (1-65)	42 DF	DSCRIP 914
R	VMAG	MAGNITUDE OF MAG. FIELD VECTOR (X MAG(BVEC BP)	43 EA	DSCRIP 915
P		AT BURST POINT	43 EA	DSCRIP 916
R	RPRIM	RHO PRIME (1-6)	45 EC	DSCRIP 917
R	VOL1	V (INITIAL VOLUME) (1-168A)	48 EG	DSCRIP 918
R	VOL3	VOLUME AT TIME T3	48 EI	DSCRIP 919
R	GAMMA	GAMMA(1-167A,B,C) EXP. VALUE TO BE USED IN ADIABATIC	50 EK	DSCRIP 920
P		FORMULA(1-162) FOR TIME THAX .LE. T .LE. T3	50 EK	DSCRIP 921
R	RHOFO	PD(1-176A,B,C) INITIAL DENSITY AT BOTTOM OF FIREBALL	51 EP	DSCRIP 922
R	HSO	MODLON.248	52 FO	DSCRIP 923
R	HS1	HS1(1-177) INITIAL DENSITY SCALE HT. INSIDE FB	53 ER	DSCRIP 924
R	AMASS	M(1-179...) MASS OF FIREBALL	54 ES	DSCRIP 925
R	ENDON	MBETA0 (1-160) DEBRIS DISTRIB. PARAMETER	55 EU	DSCRIP 926
R	RHO	SEA-LEVEL DENSITY (RHOZ0 IN CONCON)	56 EV	DSCRIP 927
R	VMAX	VOLUME AT TIME THAX	57 EW	DSCRIP 928
R	HBHAG	TAKEN FROM CONBB (ONCE) UNIVERSAL HBHMG	59 FB	DSCRIP 929
R	DELH	DELTAH (1-31) -CENTER- LOCATION (Z0)	60 FC	DSCRIP 930
P		(ABOVE OR BELOW BURST POINT)	61 FD	DSCRIP 931
R	DHMAX	DELTAHMAX(1-76) MAX ALT. INTERVAL FOR RISE IN PHASE 3	62 FH	DSCRIP 932
R	ZM	(UNKNOWN)	63 HA	DSCRIP 933
R	TFO	TO(1-165,166A,B) INITIAL TEMPERATURE	64 HB	DSCRIP 934
R	TEH3	TEMPERATURE AT T3(END OF ADEABATIC EXPANSION)	64 HB1	DSCRIP 935
P		1-162 MODLON.2 34	65 HN	DSCRIP 936
R	RN	NEXP (1-56) EXPANSION EXPONENT	65 RN	DSCRIP 937
R	SD	SIN OF MAG. DIP ANGLE AT BURST POINT	66 SD	DSCRIP 938
I	MR	1-2,3,4 HB .LE. BMAG .AND. RH .GT. HB	67 MR	DSCRIP 939
P		1=SURFACE, 2=FREE AIR, 3=LATE MAGNETIC, 4=INIT. MAGNETIC	67 MR	DSCRIP 940
R	TILTF	ANGLE OFF VERTICAL OF FIREBALL AXIS	68 PA	DSCRIP 941
R	THETA	(UNKNOWN)	69 THETA	DSCRIP 942
R	DBP	STORAGE FOR DRIVEXP) IN CASE OFFSET CHANGES DB	70 DBP	DSCRIP 943
R	TD1	TD1 TRANSITION TIMES BETWEEN RISE MODELS SEE 4*,5*	71 TD1	DSCRIP 944
R	TD2	TD2 TRANSITION TIMES BETWEEN RISE MODELS * SEE 4*, 5*	72 TD2	DSCRIP 945
R	FACT	CALC. AT MODLON.78 EON...	73 FACT	DSCRIP 946
R	VBU	V01 (1-71A) INIT. RISE IN LOW ALT. REGIME	74 VBU	DSCRIP 947
R	ADP	STORAGE FOR AD (T3)	75 ADP	DSCRIP 948
R	BA2	RH FROM (1-75) (INIT. RADIATION FB RAD-HIGH ALT.)	76 RA2	DSCRIP 949
R	RPM	MODLON.188 RPM OF EON3* R1 CANT IDENTIFY	77 RPM	DSCRIP 950
R	RADY1	RADIATION YIELD FOR BURST 1 FOR RADMRGE		DSCRIP 951
R	RADY2	RADIATION YIELD FOR BURST 2 FOR RADMRGE		DSCRIP 952
R	TSHCK	SHOCK ARRIVAL TIME AFTER MERGE		DSCRIP 953
R	VSHCK	SHOCK VELOCITY AFTER MERGE		DSCRIP 954

R	OFMAG	GROUND EFFECT SHOCK WAVE STRENGTH	USCRIP 955
P	LHV LOF	LIST OF SHOCKWAVE DATASETS FROM OTHER BURSTS WHICH INFLUENCE	DSCRIP 956
		THE MOVEMENT OF THIS FIREBALL.	DSCRIP 957
NEW FT		FIREBALL INTERACTION DATASET	DSCRIP 958
DSP DSPFB		POINTER TO FIREBALL (FB)	DSCRIP 959
H	TILTO	INITIAL TILT	DSCRIP 960
R	TDOUP		DSCRIP 961
I	KINDF	TYPE OF INTERACTION	DSCRIP 962
R	TUPDT	UPDATE TIME BASED ON INTERACTIONS	DSCRIP 963
R	TREFL	TIME FOR REJECTED SHOCK TO REACH FB	DSCRIP 964
R2	OFFMG	MAGNITUDE OF OFFSET DUE TO SHOCKS	DSCRIP 965
R	VSCHK	VELOCITY DUE TO SHOCKS	DSCRIP 966
NEW EF		EDITED FIREBALL DATASET FOR USE IN HYDRO	DSCRIP 967
R	T1	TIME OF START OF FIREBALL MOTION	DSCRIP 968
R	R1	RADIUS AT START OF FIREBALL MOTION	DSCRIP 969
R	P1	POSITION OF FIREBALL AT START OF MOTION	DSCRIP 970
R	T2	TIME AT END OF FIREBALL MOTION	DSCRIP 971
R	R2	RADIUS AT END OF FIREBALL MOTION	DSCRIP 972
R3	P2	POSITION OF FIREBALL AT END OF MOTION	DSCRIP 973
DSP DSPFB		POINTER TO FIREBALL WHICH CAUSES THIS MOTION DATASET	DSCRIP 974
H	MOVE	FLAG = 2HNO IF TOO FAR AWAY TO MOVE POINT. 3HYES OTHERWISE	DSCRIP 975
NEW H2		FIREBALL PARAMETERS AT FUTURE TIME	DSCRIP 976
H	TYPEF	HIGH OR LOW	DSCRIP 977
I	KINDF	FIREBALL TYPE FLAG	DSCRIP 978
I	INDXF	FIREBALL INDEX NUMBER	DSCRIP 979
R	RTF	TRANSVERSE RADIUS	DSCRIP 980
R	RLF	LATERAL RADIUS	DSCRIP 981
R3	FBPOS	FIREBALL POSITION	DSCRIP 982
R3	FBVEL	FIREBALL VELOCITY	DSCRIP 983
R	HF	FIREBALL ALTITUDE	DSCRIP 984
R	HOOT	RISE RATE	DSCRIP 985
R	ROOT	EXPANSION RATE	DSCRIP 986
R	RHOF	DENSITY AT A SPECIFIED POINT	DSCRIP 987
R	HSF	DENSITY SCALE HEIGHT	DSCRIP 988
R	TF	TEMPERATURE	DSCRIP 989
R	SF	STRIATION FRACTION	DSCRIP 990
R	TIMEF	BURST TIME	DSCRIP 991
R	TSB	TIME SINCE BURST	DSCRIP 992
R	HMINF	MIN ALTITUDE OF REGION	DSCRIP 993
R	HMAXF	MAX ALTITUDE OF REGION	DSCRIP 994
R	TILTF	TILT FROM VERTICAL	DSCRIP 995
R	POT	ROTATION ANGLE OF AXIS FROM MAG NORTH	DSCRIP 996
R	PVT	TRANSVERSE RADIUS OF VORTEX	DSCRIP 997
R	PVL	LATERAL RADIUS OF VORTEX	DSCRIP 998
R	VOV	VOLUME OF VORTEX	DSCRIP 999
R	BVAL	PARAMETER USED IN OVAL OF CASSINI DEFINITION	DSCRIP1000
R	RTREFF	HORIZONTAL DISTANCE TO REFERENCE POINT IN OVAL (CM)	DSCRIP1001
R	TVORT	VORTEX BOUNDARY TEMPERATURE (DEG K)	DSCRIP1002
R	FE	ENTRAINMENT FACTOR	DSCRIP1003
R	FE	CHARACTERISTIC MERGING TIME	DSCRIP1004
I	MRGIO	MERGE IDENTIFICATION	DSCRIP1005
DSP XMRG		DSP TO NEW FB DATASET	DSCRIP1006
NEW D2		DEBRIS PROPERTIES AT TIME T2	DSCRIP1007

H DLARL
 1 IDFLG
 R R WDR
 R R MOR
 R R RTHS
 R R RLHS
 R R RNBS
 R R RTD
 R R VOLD
 R3 DBPDS
 NEW OF
 P
 DSP DSPFB
 R DTADR
 R OFMAG
 NEW ES
 I KTYPE
 R TIME
 R TNEW
 I IBACK
 NEW RF
 R TIME
 I I INDX
 H TYPE
 R THETA
 R PHI
 R EL
 R R85H
 R R85E
 R R60H
 R R60E
 NEW M1
 R32 M2
 NEW M2
 R17
 NEW NE
 I KTYPE
 R TIME
 R FREQ
 R3 PT
 R3 UVEC
 DSP DSPFB
 DSP CO
 NEW PG
 I KTYPE
 R TIME
 DSP DSPFB
 NEW UP
 I KTYPE
 R TIME
 H KFLAG
 R TNEW
 DEBRIS TYPE
 FLAG DESIGNATING SHAPE
 YIELD (ERGS)
 ALTITUDE OF DEBRIS CENTER (CM)
 HORIZONTAL RADIUS (CM)
 VERTICAL RADIUS (CM)
 DEBRIS DISTRIBUTION PARAMETERS
 RADIUS OF EQUIVALENT SPHERE (CM)
 DEBRIS VOLUME (CC)
 DEBRIS POSITION
 INCOMING SHOCKWAVE DATASET ON -LOF BP- LIST FOR THE AFFECTED BURST.
 POINTER TO THE FIREBALL WHICH IS PRODUCING THIS SHOCK EFFECT
 DELTA TIME OF ARRIVAL FOR THE SHOCK
 MAGNITUDE OF THE ARRIVING SHOCK
 STRIATION EVENT DATASET
 EVENT TYPE (=13)
 TIME OF THIS EVENT (SEC)
 UPDATE TIME (SEC)
 FLAG FOR RESETTING STRIATION DATA
 BETA TUBE FORMAT DATASET
 TIME OF OUTPUT
 FIREBALL INDEX
 HOLLERITH FLAG DESCRIBING SHAPE (STRAIGHT OR KINK)
 INITIAL DIP ANGLE
 KINK ANGLE WITH RESPECT TO HORIZONTAL
 DISTANCE FROM SUB-BURST POINT TO KINK
 N-S RADIUS OF INNER REGION AT 85 KM
 E-W RADIUS OF INNER REGION AT 85 KM
 N-S RADIUS OF INNER REGION AT 60 KM
 E-W RADIUS OF INNER REGION AT 60 KM
 LOW ALTITUDE FIREBALL PARAMETERS FOR MRC MODEL
 ARRAY OF C-CONSTANTS
 LOW ALTITUDE FIREBALL PARAMETERS FOR MRC MODEL
 ARRAY OF D-CONSTANTS
 POINT PROPERTIES EVENT DATASET
 EVENT TYPE=19
 TIME OF THIS EVENT
 RADAR FREQUENCY (HZ)
 POINT OF INTEREST (CM)
 HORIZONTAL UNIT VECTOR FROM FB CENTER
 POINTER TO FIREBALL DATASET (FB)
 POINTER TO CHEM OUTPUT DATASET (CO)
 PROMPT ENERGY DEPOSITION EVENT DATASET
 EVENT TYPE=14
 TIME OF THIS EVENT
 POINTER TO FIREBALL DATASET (FB)
 LOW ALTITUDE UPDATE EVENT DATASET
 EVENT TYPE=15
 TIME OF THIS EVENT
 TYPE OF EVENT (=3MLOW)
 UPDATE TIME FOR THIS EVENT

DSCRIP1008
 DSCRIP1009
 DSCRIP1010
 DSCRIP1011
 DSCRIP1012
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 DSCRIP1014
 DSCRIP1015
 DSCRIP1016
 DSCRIP1017
 DSCRIP1018
 DSCRIP1019
 DSCRIP1020
 DSCRIP1021
 DSCRIP1022
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 DSCRIP1059

PART 1.2 - COMPLETE DATA LISTINGS

NUMBER 1

(TG) ---TARGET POINT DATASET

WORD	TYPE	MNEMONIC
1	H	NAME
2	H	POS
3	H	TG
4	H	NGOOS
5	H	TG
6	R	THIT
7	R	DEL
8	R	SIGT
9	R	CEP
10	R	MCDE
11	P	VALUE
12	DSP	TGOUT
13	DSP	TG
14	DSP	TG
15	DSP	TG
16	DSP	TG
17	DSP	TG
18	DSP	TG
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(UNIT) ---STORAGE ALLOCATION FOR OBJECT BETA-TABLE

--ITEM IDENTIFICATION--
DO N-POINT INTERPOLATION FOR THIS VALUE OF N.
ALTITUDE-BETA PAIR NUMBER 1. IN TABULATED FUNCTION
ALTITUDE-BETA PAIR NUMBER 2
AND SO ON. FOR AS MANY AS NEEDED.

TOTAL NUMBER OF WORDS IN DATASET IS 7

1061 ---OBJECT POSITION DATASET

--ITEM IDENTIFICATION--
ORBITAL ELEMENT DATASET A LA TRAUD (O.V.)
RE-ENTRY TIME
ENDO-ATMOSPHERIC STATE VECTOR
POINTER TO THE APPLICABLE BETA TABLE FOR ENDO-ATMOSPHERIC WORK.
BETA MULTIPLIER FOR MODIFICATION OF THE NOMINAL BETA TABLE
ASSET IS 23

09/01 --BAGAD DATASET

--ITEM IDENTIFICATION--
NAME OF RADAR FOR IDENTIFICATION PURPOSES
POINTER TO PLATFORM MODEL DATASET
POINTER TO THE BORESIGHT DEFINITION SET FOR THIS RADAR
POINTER TO RADAR TYPE DATA APPROPRIATE TO THIS RADAR
POINTER TO THE ERROR COEFFICIENTS GIVING THEM AS FCN. OF S/N
POINTER TO DISCRIMINATION INPUT DATASET(DI)
LIST OF TRACK FILES FOR OBJECTS BEING TRACKED BY THIS RADAR
FASSET IS 7

1401 ----- BASIC DATA SET

```
--ITEM IDENTIFICATION--
LIST OF EVENTS
  POINTER TO OUTPUT SUMMARY DATASET
  OVERLAY CALLING STRUCTURE
  INTERNAL OUTPUT INSTRUCTIONS
  LIST OF OBJECTS
  RADAR LIST HEADER
  POINTER TO PARAMETERS FOR THE TRACK FILTER
  BURST LIST
  FIREBALL LIST
  A CONSTANT ARRAY SIMILAR TO -CONCON- INTERNALLY COMPUTED
  LOW ALTITUDE FIREBALL ARRAY LIST A LA -LATAMB- MODEL
  HIGH ALTITUDE BURST LIST FOR THE HEAVE MODEL
  LIST OF OFFSET DATASETS
  POINTER TO MG DATASET
  HEAVE PARAMETERS AS NEEDED
  FLAG TO TURN ON HYDRO MOTION OUTSIDE LA FIREBALLS
  FLAG FOR STATION CALCULATION (INPUT YES OR NO)
  FB PRINTER PLOT FLAG (INPUT YES OR NO)
  COLLECTION OF INITIALIZATION CONSTANTS FOR MRC LOW ALTITUDE
    FIREBALL MODEL.
  COLLECTION OF INITIALIZATION CONSTANTS FOR MHC LOW ALTITUDE
    FIREBALL MODEL.
  FLAG TO OUTPUT FB POSITION RELATIVE TO RADAR
  YBASE IS 21
```

NUMBER 9

(AT) ---ATTACK GENERATION EVENT (TYPE 1)

WORD	TYPE	MNEMONIC	ITEM IDENTIFICATION-- EVENT TYPE (N1 FOR THIS EVENT)
1	I	AT	TIME OF THIS EVENT
2	P	AT	POINT TO THE TRACK ARRAY FOR THIS RADAR/OBJECT PAIR
3	DSP	AT	POINT TO THE TRACK ARRAY FOR THIS RADAR/OBJECT PAIR
4	LHV	LAUN AT	HEADER FOR LIST OF LAUNCH POINTS
5	LHV	TARG AT	HEADER FOR LIST OF TARGET POINTS
TOTAL NUMBER OF WORDS IN DATASET IS 5			

NUMBER 10

(E4) ---RADAR LOOK EVENT DATASET

WORD	TYPE	MNEMONIC	ITEM IDENTIFICATION-- EVENT TYPE (N4 FOR THIS EVENT TYPE)
1	I	TIME E4	TIME OF EVENT OCCURRENCE
2	R	RADAR E4	POINT TO THE RADAR INVOLVED IN THIS EVENT
3	DSP	NOHUT E4	POINT TO THE OBJECT INVOLVED IN THIS EVENT
4	DSP	KTRAK E4	POINT TO THE TRACK ARRAY FOR THIS RADAR/OBJECT PAIR
5	DSP	KFLAG E4	PURPOSE OF EVENT (=INITIAL,SEARCH,VERIFY,TRACK IN,TRACK)
6	H	PHOP E4	POINT TO PROPAGATION INPUTS DATASET
7	DSP	RSP E4	POINT TO RADAR SIGNAL PROCESSING DATASET
8	DSP	SYST E4	POINT TO SYSTEM OUTPUT DATASET (SO)
9	DSP	POUT E4	POINT TO PROPAGATION DATASET (PP)
10	DSP	DSCRM E4	POINT TO DISCRIMINATION INPUT DATASET (DI)
11	DSP	SPIN E4	SIGNAL PROCESSING INPUTS DATASET (SI)
12	DSP	SPOUT E4	SIGNAL PROCESSING OUTPUTS DATASET (SP)
13	DSP	REFRP E4	POINT TO REF DATASET
14	DSP	DSCRM E4	INITIAL TIME FOR DISCRIMINATION FOR THIS OBJECT FOR THIS RADAR
15	P	IFLAG E4	OVERLAY FLAG
16	I	IFAIL E4	PROPAGATION FAILURE MODE FLAG
17	I	IFAIL E4	POINT TO HEAL TARGET OF INTEREST
18	DSP	DSPTI E4	POINT TO TARGET IMAGE OF INTEREST
19	DSP	DSPTI E4	NUMBER OF PROPAGATION PATHS
20	I	NP E4	COSINE OF ANGLE BETWEEN LOS AND VELOCITY
21	R	CSXI E4	POINT TO SYSTEMS OUTPUT DATASET(SO)
22	DSP	DSPSO E4	LINE OF SIGHT
23	R	XLOS E4	TOTAL NUMBER OF WORDS IN DATASET IS 25

NUMBER 11

(TF) ---DATA REQUIRED TO IMPLEMENT THE KALMAN FILTER

WORD	TYPE	MNEMONIC	ITEM IDENTIFICATION-- EVENT TYPE (N4 FOR THIS EVENT TYPE)
1	R	BHUL TF	BETA MULTIPLIER AT START
2	R	PTLT TF	DECAY TIME PARAMETERS FOR FILTER (TAU1,TAU2,H SUB TAU)
3	R	BNSIG TF	BETA MULTIPLIER SIGMA AT START
4	R	BNSIG TF	BETA MULTIPLIER DOT-- RUNNING UNCERTAINTY SIGMA
5	R	BNSIG TF	POINT TO TARULATED BETA VS. ALTITUDE
6	R	BNSIG TF	POINT TO TARULATED BETA VS. ALTITUDE
7	DSP	BETA TF	POINT TO TARULATED BETA VS. ALTITUDE
TOTAL NUMBER OF WORDS IN DATASET IS 7			

NUMBER 12

(LP) ---LAUNCH POINT DATASET

WORD	TYPE	MNEMONIC	ITEM IDENTIFICATION-- EVENT TYPE (N4 FOR THIS EVENT TYPE)
1	H	NAME LP	NAME OF THE LAUNCH POINT
2	R	POS LP	LOCATION OF THE LAUNCH POINT
3	R	RTYPE LP	POINT TO THE BOOSTER TYPE ASSOCIATED WITH POINT
4	DSP	NEQOS LP	NUMBER OF AVAILABLE BOOSTERS AT THIS LAUNCH POINT
5	I	NLAUN LP	COUNTER OF NUMBER LAUNCHED SO FAR FROM THIS POINT
6	I	NLAUN LP	COUNTER OF NUMBER LAUNCHED SO FAR FROM THIS POINT
7	I	NLAUN LP	COUNTER OF NUMBER LAUNCHED SO FAR FROM THIS POINT
TOTAL NUMBER OF WORDS IN DATASET IS 7			

NUMBER 13

(RT) ---RADAR TYPE DATASET

WORD	TYPE	MNEMONIC
1	H	NAME RT
2	H	KSTAK RT
3	DSP	NOISE RT
4	DSP	TRAN RT
5	DSP	REC RT
6	DSP	SHODE RT
7	DSP	THODE RT
8	R	FREQ RT
9	R	TEMP RT
10	R	HLIM RT
11	R	OFBOR RT
12	H	POLAR RT

TOTAL NUMBER OF WORDS IN DATASET IS 12

---ITEM IDENTIFICATION---

NAME OF RADAR TYPE
 FLAG FOR BEAM STACKING (STACKED OR NONSTACKED)
 POINTER TO ERROR COEFF. FOR THIS RADAR TYPE
 POINTER TO TRANSMIT BEAM SHAPE MODEL
 POINTER TO RECEIVE BEAM SHAPE MODEL
 POINTER TO SEARCH MODE RADAR PARAMETERS DATASET
 POINTER TO TRACK MODE RADAR PARAMETERS DATASET
 RADAR FREQ. IN MEGAHERTZ
 SYSTEM TEMPERATURE (DEG K)
 HORIZON LIMIT FOR LOW VIEWING ANGLES
 OFF BORESIGHT ANGULAR LIMIT
 ANTENNA POLARIZATION INDEX (LINEAR OR NON-LINEAR)

NUMBER 14

(SM) ---SEARCH MODE DATASET

WORD	TYPE	MNEMONIC
1	R	RSQ SM
2	R	THRES SM
3	R	DELAT SM
4	H	KRACU SM
5	R	ALTHI SM
6	R	ALTLO SM
7	R	RAHNI SM
8	R	RANLO SM
9	R	AUSCN SM
10	R	VTIME SM
11	R	ELBOT SM
12	R	ELTOP SM
13	R	MAFAZ SM
14	R	BANDN SM
15	R	BANDS SM
16	R	FPC SM
17	R	SSL SM
18	I	KELAG SM

TOTAL NUMBER OF WORDS IN DATASET IS 18

---ITEM IDENTIFICATION---

RANGE ON ONE SQUARE METER
 S/N THRESHOLD FOR DET + VERIF.
 DELAY BETWEEN ACQ + TPACK
 FLAG FOR FRAME RANDOMIZATION (RANDOM OR NONRANDOM)
 UPPER LIMIT IN ALT
 LOWER LIMIT IN ALT
 OUTER LIMIT IN RANGE
 INNER LIMIT IN RANGE
 FRAME TIME OF SEARCH SCAN TIMES
 VERIFY PULSE TIME INTERVAL
 BOTTOM ELEVATION
 UPPER ELEVATION
 SIDE HALF-AZIMUTH
 NOISE BANDWIDTH FOR SEARCH WAVE FORM
 SIGNAL BAND WIDTH FOR SEARCH WAVE FORM
 PULSE COMPRESSION RATIO FOR GIVEN WAVEFORM
 CONSTANT RANGE SIDELobe LEVEL RELATIVE UNITY AT PEAK OF AMBIGUITY
 FUNCTION
 SYSTEMS OPTION FLAG (=1/NO TRACK SIMULATION)

NUMBER 15

(P1) ---PLATFORM TYPE-1 (FIXED) DATASET

WORD	TYPE	MNEMONIC
1	H	KTYPE P1
2	R	POS P1

TOTAL NUMBER OF WORDS IN DATASET IS 4

---ITEM IDENTIFICATION---

PLATFORM TYPE (ALWAYS -FIXED- FOR A FIXED PLATFORM)
 PLATFORM POSITION

NUMBER 16

(BR) ---BORESIGHT DATASET

WORD	TYPE	MNEMONIC
1	H	IACO BR
2	R	BVEC BR

TOTAL NUMBER OF WORDS IN DATASET IS 4

---ITEM IDENTIFICATION---

FLAG-YES-IF ACQ ALLOWED WITH THIS FACE
 BORESIGHT VECTOR
 ETC IN GROUPS OF FOUR FOR AS MANY AS RADAR HAS FACES

NUMBER 17

```

(81) ---RADAR BEAMSHAPE MODEL=1) DATASET
      WORD      TYPE      MNEMONIC      --ITEM IDENTIFICATION--
      1          H          MODEL B1      NAME OF MODEL - (ON/OFF)
      2          H          KTYPE B1      BEAM SHAPE FLAG (CIRCULAR OR ELLIPTICAL)
      3          R          BEAMW B1      BEAMWIDTH IN ANGULAR UNITS
      4          R          BEAMH B1      HALF BEAMWIDTH IN SINE SPACE
      5          R          BEAMV B1      FOR ELLIPTICAL BEAMS, THE HALF -V- WIDTH
      6          R          SS          NEAR-IN ANGLE SIDELOBE LEVEL (DB)
      7          R          DSS B1      SLOPE OF THE SIDELOBE TAPER (NOT CURRENTLY USED)
      TOTAL NUMBER OF WORDS IN DATASET IS 7

```

NUMBER 18

```

(REF) ---PADAR ERRORS DATASET
      WORD      TYPE  MEMORIC
      1         R     FIXE      RE
      4         R     SNE       RE
      7         R     BIAS      RE
     10         R
      ---ITEM IDENTIFICATION---
FIXED PORTION OF THE ERROR IN W+SINA, SINB AND DOPPLER
S/N DEPENDENT PORTION OF THE ABOVE ERRORS
BIAS ERRORS IN THE SAME MEASUREMENTS
SAME COLLECTION OF DATA AS THE ABOVE, FOR SECOND VIEWING MODE.
      ETC, AS NEEDED.
      NUMBER

```

NUMBER 19

```

(L#) ---LAUNCH EVENT DATASET
      WORD      TYPE      MNEMORIC
      1         R         KTYPL  LE
      2         R         TIME    LE
      3         R         LPNT    LE
      4         R         DSP     TRGT LE
      5         R         ORBEL   LE
      15        R         TIMP    LE
      16        R         DOWN   LE
      17        R         CROSS   LE
      TOTAL NUMBER OF WORDS IN DATASET IS 17

--ITEM IDENTIFICATION--
EVENT TYPE -- ALWAYS 2 FOR THIS EVENT
TIME OF OCCURRENCE OF THIS EVENT
POINTER TO THE LAUNCH POINT DATASET
POINTER TO THE TARGET POINT DATASET
A STANDARD TRAID ORBITAL ELEMENT ARRAY
SCHEDULED IMPACT TIME
STOCHASTIC DOWN RANGE
STOCHASTIC CROSS RANGE
IMPACT ERROR
DATASET IS 17

```

NUMBER 20

```

(IE) ---IMPACT EVENT DATASET?
      WORD      TYPE  MNEMONIC
      1         I      KTYPE IE
      2         R      TIME IE
      3         DSP     OBJECT IE
      TOTAL NUMBER OF WORDS IN DATASET IS 3
      --ITEM IDENTIFICATION--
      EVENT TYPE - ALWAYS 3 FOR THIS EVENT
      TIME OF IMPACT
      POINTER TO OBJECT
      DATASET IS 3

```

NUMBER 21

```
(TK) ---TRACK FILTER DATASET FOR THE EXTENDED KALMAN FILTER
--ITEM IDENTIFICATION--
      WORD      TYPE      MNEMONIC
      1         R      TIME TK
      2         R      POSIT TK
      5         P      VELOC TK
      8         R      BMUL TK
      9         R      COVAR TK
      TOTAL NUMBER OF WORDS IN DATASET IS 57
      TIME OF APPLICABILITY OF CURRENT STATE VECTOR
      PREDICTED POSITION
      PREDICTED VELOCITY
      PREDICTED RETA MULTIPLIER
      CURRENT COVARIANCE MATRIX
```

NUMBER 22

```

(FL)  ---TRACKFILE DATA SET (FOR C/C ORGANIZATION)
      WORD  TYPE  PNEUMONIC  --ITEM IDENTIFICATION--
      1  DSP  OBJ  FL  POINTER TO THE OBJECT INVOLVED
      2  LHV  RAD  FL  LIST OF RADARS CONTRIBUTING MEASUREMENTS TO THIS TRACK FILE
      3  DSP  FILE  FL  POINTER TO THE FILTER DATA BEING GENERATED
      4  R  START  FL  TIME OF TRACK INITIATION FOR THIS TRACK FILE
      TOTAL NUMBER OF WORDS IN DATASET IS 4
      NUMB

```

NUMBER 23

```
(B4) ---BETA MODEL 1 - CONSTANT VALUE DATASET
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
1  I  KTYPE B4  MODEL TYPE (KTYPE=1)
2  R  BETA B4  VALUE OF BETA
TOTAL NUMBER OF WORDS IN DATASET IS 2
```

NUMBER 24

```
(B3) ---BETA MODEL 3 - CONE DYNAMIC
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
1  I  KTYPE B3  MODEL TYPE (KTYPE=3)
2  R  OMASS B3  OBJECT MASS
3  R  BETA B3  OBJECT REFERENCE AREA
4  R  SIGB B3  STANDARD DEVIATION OF BETA
5  R  BMIN B3  MINIMUM BETA
6  R  CONE B3  CONE ANGLE
TOTAL NUMBER OF WORDS IN DATASET IS 6
```

NUMBER 25

```
(T1) ---TUMBLING MODEL 1 - 2
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
1  I  KTYPE T1  MODEL TYPE (KTYPE=1 OR 2)
2  I  IFIRST T1  FIRST CALL FLAG
TOTAL NUMBER OF WORDS IN DATASET IS 2
```

NUMBER 26

```
(T3) ---TUMBLING MODEL 3
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
1  I  KTYPE T3  MODEL TYPE (KTYPE=3)
2  I  IFIRST T3  FIRST CALL FLAG
3  R  TRATE T3  TUMBLING RATE
4  R  STABL T3  STABILIZATION ALTITUDE
5  R  TINIT T3  TIME OF INITIAL ONCULATION
6  R  TNULL T3  THETA NULL
7  R  TAXIS T3  TUMBLE AXIS ONCULATION (UNIT VECTOR IN I.S.)
10  R  HNULL T3  VECTOR USED TO DEFINE TUMBLING PLANE
13  R  UNULL T3  VECTOR USED TO DEFINE TUMBLING PLANE
TOTAL NUMBER OF WORDS IN DATASET IS 15
```

NUMBER 27

```
(SH) ---SHEATHING MODEL DATASET
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
1  I  KTYPE SH  MODEL TYPE
2  I  NVAL SH  N-VALUE OF N-POINT INTERPOLATION (2=LINEAR)
3  I  NPTS SH  NUMBER OF POINTS IN TABLE
4  R  AMPRC SH  ALTITUDE-MULTIPLIER(ON RCS) PAIR 1
6  R  ALTITUDE-MULTIPLIER(ON RCS) PAIR 2
AND SO ON
TOTAL NUMBER OF WORDS IN DATASET IS 6
```

NUMBER 28

```
(R1) ---RCS MODEL 1 - CONSTANT DATASET
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
1  I  KTYPE R1  MODEL TYPE (KTYPE=1)
2  R  RCS R1  VALUE
TOTAL NUMBER OF WORDS IN DATASET IS 2
```

NUMBER 29

```
(R2) ---RCS MODEL 2 - RCS VS ASPECT DATASET
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
1  I  KTYPE R2  MODEL TYPE (KTYPE=2)
2  I  NVAL R2  NUMBER OF DATA PAIRS IN TABLE
3  I  NPTS R2  NPT-INTERPOLATION WILL BE PERFORMED (2=LINEAR)
```


NUMBER 29

```

(R2) ---RCS MODEL 2 - RCS VS ASPECT DATASET
      WORD      TYPE      MNEMONIC      --ITEM IDENTIFICATION--
      4      H      RCSRA R2      ASPECT ANGLE--RCS PAIR 1
      6      R      RCSRA R2      ASPECT ANGLE--RCS PAIR 2
      AND SO ON
TOTAL NUMBER OF WORDS IN DATASET IS 6

```

NUMBER 30

```

(R3) ---RCS MODEL 3 - TANKS
      WORD      TYPE      MNEMONIC      --ITEM IDENTIFICATION--
      1      I      KTYPE R3      MODEL TYPE (NTYPE=3)
      2      R      TLEN R3      TANK LENGTH
      3      R      TRAD R3      TANK RADIUS
      4      R      TWPI R3      K=2PI/LAMDA
TOTAL NUMBER OF WORDS IN DATASET IS 4

```

NUMBER 31

```

(R4) ---RCS MODEL 4 - RVS AND DECOYS
      WORD      TYPE      MNEMONIC      --ITEM IDENTIFICATION--
      1      I      KTYPE R4      MODEL TYPE (NTYPE=4)
      2      R      BLEN R4      BODY LENGTH
      3      R      SPIN R4      SPIN RATE
      4      R      CONA R4      CONSTANT A
      5      R      CONB R4      CONSTANT B
      6      R      ALPH R4      K=2PI/LAMDA
      7      R      TWPI R4      K=2PI/LAMDA
      8      I      NVAL R4      N-VALUE FOR N-POINT INTERP (2=LINEAR)
      9      I      NSEG R4      NUMBER OF SEGMENTS
      10     R      SIGT R4      PHI-SIGMA PAIR 1
      12     R      PHIG R4      PHI-GAMMA PAIR 2
      14     R      PHIG R4      PHI-GAMMA PAIR 3
      AND SO ON
TOTAL NUMBER OF WORDS IN DATASET IS 15

```

NUMBER 32

```

(TM) ---TRACK MODE DATASET
      WORD      TYPE      MNEMONIC      --ITEM IDENTIFICATION--
      1      R      STN  TM      TRACK DETECTION SIGNAL/NOISE THRESHOLD
      2      R      RMIN TM      MINIMUM TRACKING RANGE
      3      R      RMAX TM      K1 AND K2 PARAMETERS FOR SETTING RANGE GATES
      5      R      TLT  TM      TOTAL TIME BEFORE RADAR DROPS TRACK
      6      R      TT   TM      TIME INTERVAL BETWEEN SUCCESSIVE TRACK PULSES
      7      R      RSQ  TM      RANGE ON 1 SQ METER IN TRACK MODE
      8      R      W1   TM      RANGE GATE SETTING PARAMETER DURING TRACK INITIALIZATION
      9      R      HAND TM      NOISE BANDWIDTH FOR TRACK WAVEFORM
      10     R      BANDS TM      SIGNAL BANDWIDTH FOR TRACK WAVEFORM
      11     R      PPC  TM      PULSE COMPRESSION RATIO FOR GIVEN WAVEFORM
      12     R      SSL  TM      CONSTANT RANGE SIDELobe LEVEL RELATIVE UNITY AT PEAK OF AMBIGUITY
      FUNCTION
TOTAL NUMBER OF WORDS IN DATASET IS 12.

```

NUMBER 33

```

(R5) ---RADAR SIGNAL PROCESSING DATASET
      WORD      TYPE      MNEMONIC      --ITEM IDENTIFICATION--
      1      R      DRD  RS      RANGE RESOLUTION WIDTH FOR UN-CHIRPED PULSE (=C*TAU/2)
      2      R      DRI  RS      RANGE RESOLUTION WIDTH FOR CHIRPED PULSE (2*DRD/F SUB PC)
      3      R      XLD  RS      DISPERSIVE LOSS FACTOR
      4      R      DROPR RS      DISPERSION-DISTORTED RANGE RESOLUTION (=DRO*LD)

```

NUMBER 33

(RS) ---RADAR SIGNAL PROCESSING DATASET

WORD	TYPE	MEMONIC
5	R	DRIPR RS
6	R	AD RS
7	R	W RS
8	R	RC RS
9	LHV	PSLT RS
10	LHV	LST RS
11	LHV	GRIS RS
12	R	UVO RS
13	R	FBAR RS
14	R	SOPR RS
15	R	SIGPAR RS

TOTAL NUMBER OF WORDS IN DATASET IS 15

---ITEM IDENTIFICATION---

DISPERSION-DISTORTED RANGE RESOLUTION (WDRI*LD)

DISPERSION PARAMETER

CURRENT WIDTH OF RECEIVE GATE

RANGE TO CENTER OF RECEIVE RANGE GATE

HEADER TO LIST OF REAL TARGETS WHICH MAY CONTRIBUTE TO SIGNAL

LIST OF TARGET IMAGES WHICH CONTRIBUTE TO SIGNAL

LIST OF CLOSE-TARGET-GROUPS

BEAM POINTING DIRECTION

EXPECTED DOPPLER SHIFT TO WHICH RECEIVER FILTER IS MATCHED

SIGNAL PARAMETER

NUMBER 34

(RL) ---REAL TARGETS DATASET

WORD	TYPE	MEMONIC
1	DSP	KOBJT RL
2	R	RUV RL
3	R	SIGMA RL
4	R	FD RL
5	R	OFFAX RL
6	R	X RL
7	R	IFIT RL
8	R	PARAMETER (SIGMA/R**4)
9	M	FLAG INDICATING THIS IS (IS NOT) PRIMARY TARGET OF INTEREST

TOTAL NUMBER OF WORDS IN DATASET IS 9

---ITEM IDENTIFICATION---

POINTER TO OBJECT CORRESPONDING TO TARGET

CURRENT TIME COORDINATES OF TARGET (RIU,V)

CURRENT TARGET CROSSSECTION

CURRENT TARGET DOPPLER SHIFT

CURRENT TIME ANGLE OFF BEAM AXIS

PARAMETER (SIGMA/R**4)

FLAG INDICATING THIS IS (IS NOT) PRIMARY TARGET OF INTEREST

NUMBER 35

(TI) ---TARGET IMAGES DATASET

WORD	TYPE	MEMONIC
1	DSP	KOBJT TI
2	R	RUV TI
3	R	SIGMA TI
4	R	FD TI
5	R	OFFAX TI
6	R	X TI
7	R	IFIT TI
8	R	PARAMETER (SIGMA*FI**2/(R-PRIME)**4)
9	M	FLAG INDICATING PRIMARY TARGET OF INTEREST

TOTAL NUMBER OF WORDS IN DATASET IS 9

---ITEM IDENTIFICATION---

POINTER TO OBJECT CORRESPONDING TO THIS IMAGE

CURRENT APPARENT COORDINATES OF IMAGE (RIU,V-PRIME)

CURRENT EFFECTIVE TARGET CROSSSECTION

CURRENT DOPPLER SHIFT

CURRENT APPARENT ANGLE OFF BEAM AXIS

PARAMETER (SIGMA*FI**2/(R-PRIME)**4)

FLAG INDICATING PRIMARY TARGET OF INTEREST

NUMBER 36

(IO) ---SUMMARY OUTPUT DATASET

WORD	TYPE	MEMONIC
1	LHV	SYSTM IO
2	DSP	TRAJF IO
3	DSP	MEASF IO
4	DSP	TFOF IO
5	DSP	PROPF IO
6	DSP	DSCHF IO
7	DSP	FROUT IO
8	LHV	BURST IO
9	LHV	FH1 IO
10	LHV	FH2 IO
11	LHV	FH3 IO
12	LHV	FH4 IO
13	LHV	DD1 IO
14	LHV	BE1 IO
15	LHV	CO IO

---ITEM IDENTIFICATION---

LIST OF SYSTEM OUTPUTS (SO)

TRAJECTORY OUTPUT FORMAT

MEASUREMENT OUTPUT FORMAT

TRACK FILTER OUTPUT FORMAT

PROPAGATION OUTPUT FORMAT

DISCRIMINATION OUTPUT FORMAT

FIREBALL POSITION OUTPUT FORMAT

LIST OF BP DATASETS

LIST OF F1 DATASETS

LIST OF F2 DATASETS

LIST OF F3 DATASETS

LIST OF F4 DATASETS

LIST OF D1 DATASETS

LIST OF D2 DATASETS

LIST OF BETA TUBE OUTPUT DATASETS (BF)

LIST OF CHEM OUTPUT DATASETS

NUMBER 36

```
(10) ---SUMMARY OUTPUT DATASET
      WORD  TYPE  MNEMONIC
      16    DSP    HOF 10
      17    DSP    FIF 10
      18    DSP    FIF 10
      19    DSP    FIF 10
      20    DSP    FIF 10
      21    DSP    DIF 10
      22    DSP    REF 10
      23    DSP    COF 10
      24    DSP    IGRPH 10
      25    DSP    ICALP 10
      TOTAL NUMBER OF WORDS IN DATASET IS 25

      ---FIREBALL POSITION OUTPUT DATASET
      WORD  TYPE  MNEMONIC
      1     R     TIME FP
      2     I     INDXF FP
      3     R     RAEFB FP
      6     R     ANG  FP
      7     R     RNG  FP
      8     R     RNCGL FP
      9     R     CTN  FP
      10    R     ABS  FP
      TOTAL NUMBER OF WORDS IN DATASET IS 10

      ---ITEM IDENTIFICATION---
      BURST PARAMETERS FORMATS
      FIREBALL SET-1 FORMATS
      FIREBALL SET-2 FORMATS
      FIREBALL SET-3 FORMATS
      FIREBALL SET-4 FORMATS
      DEBRIS SET-1 FORMATS
      BETA TUBE OUTPUT FORMATS
      CHEMISTRY OUTPUT FORMATS
      POINTER TO THE FORMAT DATASET FOR GRAPHICAL OUTPUT AS PRINTERPLOTS
      POINTER TO THE FORMAT DATASET FOR THE GRAPHICAL PLOTS
```

NUMBER 37

```
(FP) ---FIREBALL POSITION OUTPUT DATASET
      WORD  TYPE  MNEMONIC
      1     R     TIME FP
      2     I     INDXF FP
      3     R     RAEFB FP
      6     R     ANG  FP
      7     R     RNG  FP
      8     R     RNCGL FP
      9     R     CTN  FP
      10    R     ABS  FP
      TOTAL NUMBER OF WORDS IN DATASET IS 10

      ---ITEM IDENTIFICATION---
      FIREBALL INDEX
      FIREBALL POSITION IN PAE
      ANGULAR EXTENT OF FIREBALL
      RANGE EXTENT OF FIREBALL
      RANGE CELL OF RADAR
      CLUTTER TO NOISE RATIO
      INCREMENTAL ABSORPTION
```

NUMBER 38

```
(B0) ---BURST PARAMETERS
      WORD  TYPE  MNEMONIC
      1     R     TIME B0
      2     R     ETGAD B0
      3     R     EFGAD B0
      4     R     HB  B0
      5     R     RHOB B0
      6     R     HSB  B0
      7     R     TEMB B0
      8     R     RH0  B0
      9     R     TEQM B0
      10    R     TEQH B0
      TOTAL NUMBER OF WORDS IN DATASET IS 10

      ---ITEM IDENTIFICATION---
      OUTPUT TIME (SEC)
      TOTAL WEAPON ENERGY (ERGS)
      FISSION ENERGY (ERGS)
      HEIGHT OF BURST (CM)
      DENSITY AT BURST POINT (GM/CC)
      SCALE HEIGHT AT BURST POINT (CM)
      TEMPERATURE AT BURST POINT (DEG K)
      INITIAL FB RADIUS (CM)
      TIME TO REACH 2000 DEG TEMPERATURE (SEC)
      TIME TO REACH 3000 DEG TEMPERATURE (SEC)
```

NUMBER 39

```
(F1) ---F1 PARAMETERS
      WORD  TYPE  MNEMONIC
      1     R     TIME F1
      2     I     INDXF F1
      3     R     HTF  F1
      4     R     RLF  F1
      5     R     HF   F1
      6     R     HUOT F1
      7     R     HUOT F1
      8     R     RHOF F1
      9     R     TF   F1
      10    R     TSB  F1
      TOTAL NUMBER OF WORDS IN DATASET IS 10

      ---ITEM IDENTIFICATION---
      OUTPUT TIME (SEC)
      FIREBALL INDEX
      HORIZONTAL RADIUS (CM)
      VERTICAL RADIUS (CM)
      ALTITUDE OF FIREBALL CENTER (CM)
      RISE RATE (CM/SEC)
      EXPANSION RATE (CM/SEC)
      FIREBALL DENSITY AT BOTTOM OF FIREBALL (GM/CC)
      FIREBALL TEMPERATURE (DEG K)
      TIME SINCE BURST (SEC)
```


NUMBER 40

(F2) ---F2 PARAMETERS

WORD	TYPE	MNEMONIC
1	R	TIME F2
2	I	INDXF F2
3	R	HMINF F2
4	R	HMAXF F2
5	P	TILTF F2
6	R	ROT F2
7	R	RVT F2
8	R	RVL F2
9	R	VOL F2
10	R	TCAR F2

---ITEM IDENTIFICATION---

OUTPUT TIME (SEC)

FIREBALL INDEX

MINIMUM ALTITUDE OF FIREBALL REGION (CM)

MAXIMUM ALTITUDE OF FIREBALL REGION (CM)

TILT FROM VERTICAL OF FIREBALL AXIS

ROTATION OF FIREBALL AXIS

HORIZONTAL VORTEX RADIUS (CM)

VERTICAL VORTEX RADIUS (CM)

VORTEX VOLUME (CC)

CHARACTERISTIC MERGE TIME (SEC)

TOTAL NUMBER OF WORDS IN DATASET IS 10

NUMBER 41

(F3) ---F3 PARAMETERS

WORD	TYPE	MNEMONIC
1	R	TIME F3
2	I	INDXF F3
3	R	FBPOS F3
4	P	RVAL F3
5	R	RHEF F3
6	R	TVORT F3
7	R	KIND F3
8	I	MRGID F3
9	I	MRGID F3
10	I	MRGID F3

---ITEM IDENTIFICATION---

OUTPUT TIME (SEC)

FIREBALL INDEX

FIREBALL E.C. POSITION (CM)

PARAMETER FOR OVAL OF CASSINI

HORIZONTAL DISTANCE TO REFERENCE POINT IN OVAL (CM)

HORIZONTAL BOUNDARY TEMPERATURE (DEG K)

VORTEX BOUNDARY TEMPERATURE (DEG K)

FIREBALL KIND (1= SPHEROID, 3= OVAL OF CASSINI, 4= RADMRG, 5=HYDRMG)

MRGID IDENTIFICATION

TOTAL NUMBER OF WORDS IN DATASET IS 10

NUMBER 42

(D1) ---D1 PARAMETERS

WORD	TYPE	MNEMONIC
1	R	TIME D1
2	I	INDXF D1
3	I	IOFLG D1
4	R	WDR D1
5	R	MOR D1
6	R	RTBS D1
7	R	RLBS D1
8	R	RNBS D1
9	R	RTD D1
10	R	VOLD D1

---ITEM IDENTIFICATION---

OUTPUT TIME

INDEX

IDENTIFICATION FLAG

TOTAL DEBRIS ENERGY (ERGS)

ALTITUDE OF DEBRIS CENTER (CM)

HORIZONTAL DEBRIS RADIUS (CM)

VERTICAL DEBRIS RADIUS (CM)

DEBRIS DISTRIBUTION PARAMETER

RADIUS OF EQUIVALENT SPHERE

DEBRIS VOLUME (CC)

TOTAL NUMBER OF WORDS IN DATASET IS 10

NUMBER 43

(F4) ---FIREBALL SET-4 PARAMETERS

WORD	TYPE	MNEMONIC
1	R	TIME F4
2	I	INDXF F4
3	R	FRPOS F4
4	I	IC F4
5	I	JC F4
6	I	KC F4
7	I	KC F4
8	I	KC F4
9	R	FRC F4
10	I	KIND F4

---ITEM IDENTIFICATION---

OUTPUT TIME

FIREBALL INDEX

FIREBALL POSITION

CELL INDEX OF FIREBALL POSITION (X-DIRECTION)

CELL INDEX OF FIREBALL POSITION (Y-DIRECTION)

CELL INDEX OF FIREBALL POSITION (Z-DIRECTION)

FRACTION OF DISTANCE FROM CELL BOTTOM TO FB CENTER

FIREBALL TYPE

TOTAL NUMBER OF WORDS IN DATASET IS 10

NUMBER 44

```
(C0) ---CHEM OUTPUT DATASET
WORD  TYPE  MNEMONIC
1  H  TIME CO
2  I  INDF CO
3  R  ALT CO
4  R  RANGE CO
5  H  TYPE CO
6  R  ENE CO
7  R  ENP CO
8  P  TEM CO
9  R  RHC CO
10 R  DRPKM CO
11 P  AB CO
12 R  HEFCO CO
13 R  AMPRF CO
TOTAL NUMBER OF WORDS IN DATASET IS 13

--ITEM IDENTIFICATION--
TIME OF THIS OUTPUT
FIREBALL INDEX
ALTITUDE OF POINT
RANGE FROM FIREBALL TO POINT
TYPE OF POINT REQUESTED
ELECTRON DENSITY
POSITIVE ION DENSITY
TEMPERATURE
DENSITY
THICKNESS OF STEEP TEMPERATURE GRADIENT REGION
REFLECTION COEFFICIENT
AMPLITUDE REFLECTION COEFFICIENT INCLUDING ABSORPTION
TOTAL NUMBER OF WORDS IN DATASET IS 13
```

NUMBER 45

```
(C6) ---CHEM BURST DATASET
WORD  TYPE  MNEMONIC
1  I  CB
2  R  TB CR
3  R  EDP CR
4  P  EXDP CB
5  R  INEXT CB
6  I  INEXT CR
7  DSP  DSPFB CB
TOTAL NUMBER OF WORDS IN DATASET IS 7

--ITEM IDENTIFICATION--
BURST INDEX
TIME OF BURST
ENERGY DEPOSITED
FRACTION OF U3 REMAINING AFTER DISS.
TIME OF NEXT CHEM BURST
INDEX OF NEXT CHEM BURST
POINTER TO FIREBALL
TOTAL NUMBER OF WORDS IN DATASET IS 7
```

NUMBER 46

```
(MG) ---MAGNETIC FIELD DATASET
WORD  TYPE  MNEMONIC
1  R  XMDM MG
2  R  CLATD MG
3  R  SLATD MG
4  P  PHIO MG
TOTAL NUMBER OF WORDS IN DATASET IS 4

--ITEM IDENTIFICATION--
MAGNETIC DIPOLE MOMENT (GAUSS-KM)
COSINE OF NORTH LATITUDE OF MDM
SINE OF NORTH LATITUDE OF MDM
EAST LONGITUDE OF MDM
TOTAL NUMBER OF WORDS IN DATASET IS 4
```

NUMBER 47

```
(CL) ---FORMAT DATASET FOR THE GRAPHICAL OUTPUT AS CALCOMP PLOTS
WORD  TYPE  MNEMONIC
1  H  IRTN CL
2  H  LABX CL
3  H  LABY CL
4  H  ITITL CL
5  R  AXL CL
6  I  MODE CL
7  I  NA CL
8  I  IY CL
9  I  NY CL
10 I  INDEXES OF Y - S
TOTAL NUMBER OF WORDS IN DATASET IS 23

--ITEM IDENTIFICATION--
THE HORIZONTAL WORD -CALCOMP-
LABEL FOR THE X-AXIS
LABEL OF THE Y-AXIS
TITLE TO BE PLACED AT THE BOTTOM OF THE GRAPH
LENGTH OF X-AXIS, Y-AXIS, HEIGHT OF THE X-AXIS FROM BOTTOM
MODE - SEE SURROUTINE PLIN FOR EXPLANATION
INDEX OF DATASET WORD TO BE PLOTTED ALONG THE X-AXIS
NUMBER OF Y - S TO BE PLOTTED
INDEXES OF Y - S
TOTAL NUMBER OF WORDS IN DATASET IS 23
```

NUMBER 48

```
(GP) ---FORMAT DATASET FOR GRAPHICAL OUTPUT AS PRINTER PLOTS
WORD  TYPE  MNEMONIC
1  H  IRTN GP
2  H  ITITL GP
3  I  INDX1 GP
TOTAL NUMBER OF WORDS IN DATASET IS 10

--ITEM IDENTIFICATION--
NAME OF OUTPUT ROUTINE - SHGRAPH
TITLE OF GRAPH
INDEX OF ARRAY WORD TO BE PLOTTED ALONG THE X-AXIS
```

NUMBER 48

(GP) ---FORMAT DATASET FOR GRAPHICAL OUTPUT AS PRINTER PLOTS
 ---ITEM IDENTIFICATION---
 INDEX OF ARRAY WORD TO BE PLOTTED ALONG THE Y-AXIS

WORD	TYPE	MNEMONIC
11	I	INDY1 GP
12	H	ITJ12 GP
20	I	INDY2 GP
21	I	INDY2 GP
22	H	ITJ13 GP
30	I	INDY3 GP
31	I	INDY3 GP

TOTAL NUMBER OF WORDS IN DATASET IS 31

NUMBER 49

(DS) ---DUST DATASET
 ---ITEM IDENTIFICATION---
 DATASET TYPE (4HOUST)
 POINTER TO THE FIREBALL DATASET(FB)
 TOTAL MASS LOADING FACTOR
 MAXIMUM PARTICLE DIAMETER
 MINIMUM PARTICLE DIAMETER
 MASS DENSITY OF SOIL LIFTED
 INITIAL SCALED RADIUS
 NUMBER OF PARTICLES IN ALL GROUPS
 PROPORTIONALITY CONSTANT
 DUST PARTICLE LIST HEADER
 TOTAL NUMBER OF WORDS IN DATASET IS 10

WORD	TYPE	MNEMONIC
1	H	TYPE DS
2	OSP	OSPFR DS
3	R	FM DS
4	R	AMAX DS
5	R	AMIN DS
6	R	AMCP DS
7	R	RM DS
8	R	PTS DS
9	R	SK DS
10	LHV	DPLIS DS

NUMBER 50

(DP) ---DUST PARTICLE DATASET
 ---ITEM IDENTIFICATION---
 DATASET TYPE (4HOUST)
 INITIAL GROUP RADIUS
 MAXIMUM PARTICLE SIZE IN THIS GROUP
 MINIMUM PARTICLE SIZE IN THIS GROUP
 MAX ALTITUDE OF THIS REGION
 MIN ALTITUDE OF THIS REGION
 RISE RATE OF TOP OF REGION
 RISE RATE OF BOTTOM OF REGION
 AVERAGE RISE RATE OF CLOUD
 RADIUS OF CYLINDER
 EXPANSION RATE OF CLOUD
 FRACTION OF PARTICLES IN THIS GROUP
 POSITION OF CENTROID OF CLOUD
 BACKSCATTER CROSS-SECTION FOR THIS GROUP
 INCREMENTAL ABSORPTION (DB/CM)
 TOTAL NUMBER OF WORDS IN DATASET IS 17

WORD	TYPE	MNEMONIC
1	H	TYPE DP
2	R	RPI DP
3	R	AMAX DP
4	R	AMIN DP
5	R	HMAX DP
6	R	HMIN DP
7	R	MOOTX DP
8	R	MOOTN DP
9	R	MOOT DP
10	R	RC DP
11	R	RDOT DP
12	R	FN DP
13	R	POS DP
14	R	SIGR DP
17	R	SIGE DP

NUMBER 51

(EO) ---ENVIRONMENT OUTPUT EVENT
 ---ITEM IDENTIFICATION---
 EVENT TYPE (11)
 TIME OF THIS EVENT
 CHEM OUTPUT TYPE (NONE, FIREBALL, VORTEX, CONTINUUM, ALL)
 NUMBER OF CALCULATION POINTS DESIRED IN VORTEX
 DELTA PRINT TIME
 END PRINT TIME
 FREQUENCY FOR DBPKM CALCULATION

WORD	TYPE	MNEMONIC
1	I	KTYP E0
2	R	TIME E0
3	H	TYPE E0
4	I	NOTE E0
5	R	DTIME E0
6	R	ETIME E0
7	R	FREQ E0

NUMBER 51

(E0) ---ENVIRONMENT OUTPUT EVENT

WORD	TYPE	MNEMONIC
8	I	IFLAG EO
9	DSP	GRGUT EO
10	DSP	DSPFB EO

TOTAL NUMBER OF WORDS IN DATASET IS 10

NUMBER 52

(G0) ---GRID OUTPUT DATASET

WORD	TYPE	MNEMONIC
1	M	TYPE GO
2	I	IND GO
3	J	JAX GO
4	M	KIND GO

TOTAL NUMBER OF WORDS IN DATASET IS 4

NUMBER 53

(O1) ---DISCRIMINATION INPUT DATASET

WORD	TYPE	MNEMONIC
1	H	KTYPE DI
2	R	FROMX DI
3	R	FROMN DI
4	R	XLNTH DI
5	R	TD DI
6	R	MFF DI
7	R	TID DI
8	R	RWB DI
9	R	BANDN DI

TOTAL NUMBER OF WORDS IN DATASET IS 9

NUMBER 54

(O0) ---DISCRIMINATION OUTPUT DATASET

WORD	TYPE	MNEMONIC
1	H	KTYPE DO
2	R	TIME DO
3	R	ESTL DO
4	R	SIGL DO
5	M	MTYPE DO
6	R	RCSMN DO
7	R	URSUM DO

TOTAL NUMBER OF WORDS IN DATASET IS 7

NUMBER 55

(E8) ---BURST EVENT DATASET

WORD	TYPE	MNEMONIC
1	I	KTYPE E8
2	R	TIME E8
3	R	UPOS E8
4	DSP	HTYPE E8

TOTAL NUMBER OF WORDS IN DATASET IS 4

NUMBER 56

(88) ---60MB TYPE DATASET

WORD	TYPE	MNEMONIC
1	H	NAME BB
2	R	YIELD BB
3	R	FF BB
4	R	FN BB
5	R	BB

---ITEM IDENTIFICATION---

OVERLAY FLAG
 POINTER TO GRID OUTPUT DATASET
 POINTER TO FB
 POINTER TO BOMB TYPE DATASET

---ITEM IDENTIFICATION---

FIREBALL--FOR SLICE THROUGH FB/ OTHER--OTHERWISE
 INDEX OF CELL WANTED IF TYPE=OTHER
 FLAG INDICATING SLICE IS PARALLEL TO X AXIS (IAX=1)
 OR Y-AXIS (IAX=2)
 FLAG FOR KIND OF OUTPUT DESIRED (--RHO,NE,STRI, OR ALL)

---ITEM IDENTIFICATION---

DISCRIMINATION TYPE (FFL=WBL)
 MAXIMUM FREQUENCY (SFREQ FOR WBL)
 MINIMUM FREQUENCY (FOR FFL ONLY)
 BODY LENGTH
 DISCRIMINATION TIME INTERVAL
 ALTITUDE BELOW WHICH FF CANNOT BE PERFORMED
 TOTAL DISCRIMINATION TIME
 RANGE ABOVE WHICH WB CANNOT BE PERFORMED
 NOISE BANDWIDTH FOR DISCRIMINATION (HERTZ)

---ITEM IDENTIFICATION---

DISCRIMINATION TYPE
 TIME OF OUTPUT
 ESTIMATED BODY LENGTH
 STANDARD DEVIATION OF LENGTH
 MEASUREMENT TYPE (=DM,DOUBLE HUMP/ SH= SINGLE HUMP)
 MIN RCS ABOVE THRESHOLD
 ONE-WAY ATTENUATION(DB)

---ITEM IDENTIFICATION---

EVENT TYPE - FIVE FOR THIS EVENT
 TIME OF THIS EVENT
 DETONATION POSITION
 POINTER TO BOMB TYPE DATASET

---ITEM IDENTIFICATION---

NAME OF BOMB TYPE
 TOTAL YIELD OF THIS BOMB
 FISSION FRACTION
 HYDRO FRACTION
 NEUTRON FRACTION

(88) ----8046 TYPE DATASET

WORD	TYPE	MNEMONIC
6	R	FX BB
7	R	FTPM BB
8	R	FG BB
9	R	WMASS BB
10	R	FMAL BB
11	R	FMLI BB
12	R	FMFE BB
13	R	FMLU BB
14	DSP	SPECTD BB
15	DSP	SPECTI BB

--ITEM IDENTIFICATION--
 XRAY FRACTION
 FRACTION MATERIAL FISSIONABLE WITH THERMAL NEUTRONS
 GAMMA FRACTION
 WEAPON MASS (GM)
 MASS FRACTION OF ALUMINUM
 MASS FRACTION OF LITHIUM
 MASS FRACTION OF IRON
 MASS FRACTION OF URANIUM
 POINTER TO THE DEVICE DEPENDENT DATA REGARDING SPECTRAL DIS-
 TRIBUTION OF ENERGY OUTPUT.
 POINTER TO THE DEVICE INDEPENDENT DATA FOR DEFINING THE SPECTRAL
 DISTRIBUTION OF THE WEAPON ENERGY OUTPUT.
 TOTAL NUMBER OF WORDS IN DATASET IS 15

NUMBER 56

(1X) ----WEPN. INDEP. INPUT DATA FOR X-RAY DEPOSITION CALCULATIONS

WORD	TYPE	MNEMONIC
1	R	PMXR 1X

--ITEM IDENTIFICATION--
 NORMALIZED AIR MASS PENETRATED ARRAY FOR WHICH ENERGY
 DEPOSITION PARAMETERS WILL BE PRE-COMPUTED
 TOTAL NUMBER OF WORDS IN DATASET IS 15

NUMBER 57

(1G) ----WEPN. INDEP. INPUT DATA FOR GAMMA DEPOSITION CALCULATIONS

WORD	TYPE	MNEMONIC
1	R	PMG 1G

--ITEM IDENTIFICATION--
 PENETRATED AIR MASS ARRAY FOR WHICH ENERGY DEPOSITION
 PARAMETERS WILL BE PRE-COMPUTED (GM/CM2)
 TOTAL NUMBER OF WORDS IN DATASET IS 15

NUMBER 58

(1N) ----WEPN. INDEP. INPUT DATA FOR NEUTRON DEPOSITION CALCULATIONS

WORD	TYPE	MNEMONIC
1	R	PMN 1N
16	R	CHB 1N
30	R	CHD 1N
44	P	ENL 1N

--ITEM IDENTIFICATION--
 AIR MASS PENETRATED ARRAY FOR WHICH ENERGY DEPOSITION
 PARAMETERS WILL BE PRE-COMPUTED (GM/CM2)
 NONUNIFORM AIR CORRECTION FACTOR FOR ENL(K) NEUTRON
 MEAN FREE PATHS ABOVE BURST POINT
 NONUNIFORM AIR CORRECTION FACTOR FOR ENL(K) NEUTRON
 MEAN FREE PATHS ABOVE DEPOSITION POINT
 MEAN FREE PATH ARRAY FOR WHICH CORRECTION FACTORS WILL
 BE PRE-COMPUTED
 TOTAL NUMBER OF WORDS IN DATASET IS 57

NUMBER 59

(12X) ----WEPN. INDEP. INPUT DATA FOR X-RAY CALCS. (INITIALIZATION)

WORD	TYPE	MNEMONIC
1	R	PMXJ 2X
19	R	PMXJR 2X
34	R	UX 2X

--ITEM IDENTIFICATION--
 NORMALIZING AIR MASS PENETRATED FOR EACH ENERGY GROUP (GM/CM2)
 NORMALIZED AIR MASS PENETRATED FOR UX(J,K) ARRAY
 NORMALIZED ENERGY DEPOSITION COEFFICIENT ARRAY FROM ATR CODE
 FIFTEEN VALUES GIVEN FOR EACH ENERGY GROUP, CORRESPONDING TO
 THE FIFTEEN VALUES OF NORMALIZED AIR MASS PMXJR ABOVE
 TOTAL NUMBER OF WORDS IN DATASET IS 303

NUMBER 60

(12G) ----WEPN. INDEP. INPUT DATA FOR GAMMA CALCS. (INITIALIZATION)

WORD	TYPE	MNEMONIC
1	R	UG 2G

--ITEM IDENTIFICATION--
 ENERGY DEPOSITION COEFFICIENT ARRAY FROM ATR CODE (CM2/GM)
 FIFTEEN VALUES GIVEN FOR EACH ENERGY GROUP, CORRESPONDING TO
 THE FIFTEEN VALUES OF AIR MASS PENETRATED GIVEN ABOVE.
 TOTAL NUMBER OF WORDS IN DATASET IS 270

NUMBER 61

(2N) ---NEPN, INDEP, INPUT DATA FOR NEUTRON CALCS. (INITIALIZATION)

WORD	TYPE	MNEMONIC
1	R	EBARN 2N
19	R	SIGN 2N
37	R	UN 2N

---ITEM IDENTIFICATION--
 AVERAGE ENERGY FOR EACH OF 18 SPECTRAL ENERGY GROUPS (MEV)
 EFFECTIVE NEUTRON CROSS SECTION AT EACH ENERGY (CM2/GM)
 ENERGY DEPOSITION COEFFICIENT ARRAY FROM AIR CODE (CM2/GM)
 FIFTEEN VALUES GIVEN FOR EACH ENERGY GROUP, CORRESPONDING TO
 THE FIFTEEN VALUES OF AIR MASS PENETRATED GIVEN ABOVE.

TOTAL NUMBER OF WORDS IN DATASET IS 306

NUMBER 62

(3X) ---CALCULATED WEPN, DEP, DATA FOR X-RAY DEPOSITION

WORD	TYPE	MNEMONIC
1	R	FEDJ 3X
2	R	PMXR 3X
3	R	UMARX 3X
18	R	FCNTX 3X

---ITEM IDENTIFICATION--
 YIELD FRACTION IN X-RAYS
 NORMALIZING AIR MASS PENETRATED FOR THIS WEAPON (GM/CM**2)
 X-RAY ENERGY DEPOSITION INTEGRAL FOR WEAPON TYPE
 AT MASS DEPTH PMXR(K) (CM2/GM)
 X-RAY ENERGY CONTAINMENT FOR WEAPON TYPE WITHIN
 MASS DEPTH PMAR(K)

TOTAL NUMBER OF WORDS IN DATASET IS 32

NUMBER 63

(3G) ---CALCULATED WEPN, DEP, DATA FOR GAMMA DEPOSITION

WORD	TYPE	MNEMONIC
1	R	FEDG 3G
2	R	FTHPM 3G
3	R	UBRGP 3G
18	R	UBRGU 3G

---ITEM IDENTIFICATION--
 YIELD FRACTION IN PROMPT GAMMA RAY ENERGY
 FRACTION MATERIAL FISSONABLE WITH THERMAL NEUTRONS
 PROMPT GAMMA RAY ENERGY DEPOSITION INTEGRAL FOR
 WEAPON TYPE I AT MASS DEPTH PMN(K) (CM2/GM)
 DELAYED GAMMA RAY ENERGY DEPOSITION INTEGRAL FOR
 WEAPON TYPE I AT MASS DEPTH PMN(K) (CM2/GM)

TOTAL NUMBER OF WORDS IN DATASET IS 32

NUMBER 64

(3N) ---CALCULATED WEPN, DEP, DATA FOR NEUTRON DEPOSITION

WORD	TYPE	MNEMONIC
1	R	FEDN 3N
2	R	SGMAN 3N
3	R	UBRNP 3N
18	R	UBRNC 3N
33	R	XPONE 3N

---ITEM IDENTIFICATION--
 YIELD FRACTION IN DEPOSITED NEUTRON ENERGY
 MEAN TOTAL CROSS SECTION FOR WEAPON TYPE (CM2/GM)
 PROMPT NEUTRON ENERGY DEPOSITION INTEGRAL FOR WEAPON
 TYPE AT MASS DEPTH PMN(K) (CM2/GM)
 NEUTRON CAPTURE ENERGY DEPOSITION INTEGRAL FOR WEAPON
 TYPE AT MASS DEPTH PMN(K) (CM2/GM)
 NEUTRON ELASTIC SCATTER ENERGY DEPOSITION TIME-
 DEPENDENT EXPONENT FOR WEAPON TYPE AT MASS DEPTH PMN(K)

TOTAL NUMBER OF WORDS IN DATASET IS 47

NUMBER 65

(DV) ---DEVICE DATA-- WEAPON DEPENDENT OUTPUT SPECTRA

WORD	TYPE	MNEMONIC
1	H	INFLG DV
2	DSP	N1 DV
3	DSP	G1 DV
4	DSP	X1 DV
5	DSP	NEUT DV
6	DSP	GAMMA DV
7	DSP	XRAY DV

---ITEM IDENTIFICATION--
 THAT THESE ARRAYS WILL BE DESTROYED AND REPLACED DURING
 THE INITIALIZATION PROCESS. INPUT AS 4N4G, AND 4X
 TYPE DATASETS, AFTER INITIALIZATION WILL BE 3N3G, AND
 3X, RESPECTIVELY.

---SHSTART-- AT BEGINNING-- SET TO 4NDONE-- AFTER INITIALIZATION

TOTAL NUMBER OF WORDS IN DATASET IS 7

NUMBER 66

(4X) ---X-RAY WEPN. DEPENDENT DATA FOR INITIALIZATION ONLY. NUMBER 67
 WORD TYPE MNEMONIC --ITEM IDENTIFICATION--
 1 R SPEC 4X A-PAY SPECTRUM (ENERGY IN EACH OF 18 ENERGY GROUPS, MEV)
 TOTAL NUMBER OF WORDS IN DATASET IS 18

(4G) ---GAMMA WEPN. DEPENDENT DATA FOR INITIALIZATION ONLY. NUMBER 68
 WORD TYPE MNEMONIC --ITEM IDENTIFICATION--
 1 R SPEC 4G PROMPT GAMMA SPECTRUM (ENERGY IN EACH OF 18 ENERGY GROUPS, MEV)
 19 R SPEC 4G DELAYED GAMMA SPECTRUM (ENERGY IN EACH OF 18 ENERGY GROUPS, MEV)
 TOTAL NUMBER OF WORDS IN DATASET IS 36

(4N) ---NEUTRON WEPN. DEPENDENT DATA FOR INITIALIZATION ONLY. NUMBER 69
 WORD TYPE MNEMONIC --ITEM IDENTIFICATION--
 1 R SPEC 4N NEUTRON SPECTRUM (NO. IN EACH OF 18 ENERGY GROUPS)
 TOTAL NUMBER OF WORDS IN DATASET IS 18

(5C) ---WEAPON INDEPENDENT SPECTRAL ENERGY DISTRIBUTION DATA. NUMBER 70
 WORD TYPE MNEMONIC --ITEM IDENTIFICATION--
 1 DSP NEUT1 SC NEUTRON DATA, NEEDED DURING ENTIRE CALCULATIONS
 2 DSP NEUT2 SC NEUTRON DATA, NEEDED ONLY DURING INITIALIZATION
 3 DSP APAY1 SC X-PAY DATA NEEDED DURING ENTIRE CALCULATION
 4 DSP APAY2 SC X-PAY DATA NEEDED ONLY DURING INITIALIZATION
 5 DSP GAML SC GAMMA DATA NEEDED DURING ENTIRE CALCULATION
 6 DSP GAM2 SC GAMMA DATA NEEDED ONLY DURING INITIALIZATION
 TOTAL NUMBER OF WORDS IN DATASET IS 6

(PI) ---PROPAGATION INPUTS DATASET. NUMBER 71
 WORD TYPE MNEMONIC --ITEM IDENTIFICATION--
 1 R ELEV PI ELEVATION OF RADAR LOS
 2 R SMAX PI RANGE FROM RADAR TO TARGET
 3 R UNITV PI UNIT VECTOR ALONG RADAR LOS
 6 LHV MPLIS PI MANDATORY POINT LIST
 7 LHV PSLIS PI PROMPT SOURCES LIST HEADER
 TOTAL NUMBER OF WORDS IN DATASET IS 7

(MP) ---MANDATORY POINT DATASET. NUMBER 72
 WORD TYPE MNEMONIC --ITEM IDENTIFICATION--
 1 R POINT MP POINT OF CLOSEST APPROACH TO FIREBALL
 4 R RANGE MP RANGE FROM RADAR TO POINT
 5 DSP USPFB MP POINTER TO FIREBALL DATASET
 6 R SX1 MP
 7 R SX2 MP
 TOTAL NUMBER OF WORDS IN DATASET IS 7

(PS) ---PROMPT SOURCES DATASET. NUMBER 73
 WORD TYPE MNEMONIC --ITEM IDENTIFICATION--
 1 R ED PS ENERGY DEPOSITION AT POINT DUE TO THIS FIREBALL
 2 DSP FB PS POINTER TO FIREBALL DATASET ASSOCIATED WITH ED
 TOTAL NUMBER OF WORDS IN DATASET IS 2

(GR) ---TARGET GROUP DATASET. NUMBER 74
 WORD TYPE MNEMONIC --ITEM IDENTIFICATION--
 1 LHV LISTG GR LIST HEADER TO TARGET IMAGES IN THIS CLOSE-TARGET GROUP
 TOTAL NUMBER OF WORDS IN DATASET IS 1

(SO) ---SYSTEM OUTPUT DATASET. NUMBER 75
 WORD TYPE MNEMONIC --ITEM IDENTIFICATION--
 1 H OBJECT SO NAME OF OBJECT

NUMBER 75

(SO) ---SYSTEM OUTPUT DATASET

WORD	TYPE	MNEMONIC
1	H	SENSE SO
2	LHV	TRAJ SO
3	LHV	MEAS SO
4	LHV	TEOUT SO
5	LHV	PROP SO
6	LHV	USOUT SO
7	LHV	FPPOS SO
8	LHV	FPPOS SO

---ITEM IDENTIFICATION--
 NAME OF SENSER
 TRAJECTORY OUTPUT LIST (TR)
 MEASUREMENT ERRORS OUTPUT LIST (ME)
 TRACK FILTER OUTPUT LIST (TO)
 PROPAGATION OUTPUT LIST (PP)
 DISCRIMINATION OUTPUT LIST (DO)
 LIST OF FR POSITION DATASETS RELATIVE TO RADAR (FP)
 TOTAL NUMBER OF WORDS IN DATASET IS 8

NUMBER 76

(TR) ---TRAJECTORY OUTPUT DATASET

WORD	TYPE	MNEMONIC
1	H	TYPE TR
2	P	TIME TR
3	R	ALT TR
4	R	RAE TR
5	R	VEL TR
6	R	STNC TR
7	R	NTARG TR
8	R	NTARG TR
9	I	NTARG TR

---ITEM IDENTIFICATION--
 EVENT TYPE (SEARCH,VERIFY,TRACK INITIATION,TRACK)
 TIME OF OUTPUT
 ALTITUDE
 RANGE, AZIMUTH, ELEVATION
 VELOCITY
 SIGNAL TO NOISE PLUS CLUTTER RATIO
 NUMBER OF TARGETS IN RANGE CELL
 TOTAL NUMBER OF WORDS IN DATASET IS 9

NUMBER 77

(ME) ---TRACK MEASUREMENT ERRORS DATASET

WORD	TYPE	MNEMONIC
1	R	TIME ME
2	R	RAEPR ME
3	R	RMEAS ME
4	R	RMEAS ME
5	R	RMEAS ME
6	R	RMEAS ME
7	R	RMEAS ME
8	R	RMEAS ME
9	R	RMEAS ME
10	R	RMEAS ME

---ITEM IDENTIFICATION--
 TIME OF OUTPUT
 PREDICTED TARGET COORDINATES IN RAE
 RMEASUREMENTS IN RAE COORDINATES
 RANDOM ERRORS IN RAE COORDINATES
 TOTAL NUMBER OF WORDS IN DATASET IS 10

NUMBER 78

(TO) ---TRACK FILTER OUTPUT DATASET

WORD	TYPE	MNEMONIC
1	R	TIME TO
2	R	ERROR TO
3	R	RAEPR TO
4	R	RAEPR TO
5	R	RAEPR TO
6	R	RAEPR TO
7	R	RAEPR TO
8	R	RAEPR TO
9	R	RAEPR TO
10	R	RAEPR TO

---ITEM IDENTIFICATION--
 TIME OF OUTPUT
 SIX VECTOR OF POSITION AND VELOCITY ERRORS, IN LOCAL VELOC.
 ORIENTED COORD. SYSTEM
 APPARENT TARGET POSITION
 TOTAL NUMBER OF WORDS IN DATASET IS 10

NUMBER 79

(PP) ---PROPAGATION OUTPUT DATASET

WORD	TYPE	MNEMONIC
1	R	TIME PP
2	R	DRSN PP
3	R	DRSN PP
4	R	DRSN PP
5	R	DRSN PP
6	R	DRSN PP
7	R	DRSN PP
8	R	DRSN PP
9	R	DRSN PP
10	R	DRSN PP
11	R	DRSN PP
12	R	DRSN PP
13	R	DRSN PP
14	R	DRSN PP
15	R	DRSN PP
16	R	DRSN PP
17	R	DRSN PP

---ITEM IDENTIFICATION--
 TIME OF OUTPUT
 ABSORPTION FROM ALL SOURCES
 THRESHOLD ABSORPTION
 NOISE TEMPERATURE
 RUPR POWER
 CLUTTER POWER
 BIAS AND RANDOM REFRACTION ERRORS IN RAE COORD.
 DISPERSIVE LOSS
 FARADAY ROTATION LOSS
 FAILURE MODE
 SCALING FACTOR ON SIGMA FOR SPREAD TARGET CLOUD
 ANGLE BETWEEN MAJOR AXIS OF ELLIPSE AND U-COORD IN RUW
 TOTAL NUMBER OF WORDS IN DATASET IS 17

NUMBER 80

```
(CT) ---HEAVE PARAMETERS DATASET
WORD  TYPE  MNEMONIC
1  R  HAROT CT
2  R  POS CT
5  R  DELX CT
6  R  DELY CT
7  I  NCELZ CT
8  I  NXP CT
9  I  NXM CT
10 I  NYP CT
11 I  NYM CT
12 R  AZIM CT

--ITEM IDENTIFICATION--
BOTTOM ALTITUDE OF GRID
POSITION OF ORIGIN OF GRID
ANGULAR WIDTH OF CELLS IN X DIRECTION
ANGULAR WIDTH OF CELLS IN Y DIRECTION
NUMBER OF VERTICAL CELLS
NUMBER OF CELLS IN POSITIVE X-DIRECTION
NUMBER OF CELLS IN NEGATIVE X-DIRECTION
NUMBER OF CELLS IN POSITIVE Y-DIRECTION
NUMBER OF CELLS IN NEGATIVE Y-DIRECTION
AZIMUTH OF POSITIVE X-AXIS (CM FROM NORTH)
(NOTE-- BY INPUTTING THE WORD MAGNETIC THE NEGATIVE X-AXIS
IS ALIGNED WITH MAGNETIC NORTH)
NUMBER OF CELLS USED IN ION HEAVE
LAST CALCULATION TIME
NEW CALCULATION TIME
FLAG INDICATING BURST HAS JUST OCCURRED (=1)/ OTHERWISE (=0)
FLAG TO TURN ON ENERGY CHECK (1=YES,0=NO)
FLAG FOR TURNING ON REZONE (=1)/ NOT (=0)
INITIAL CELL HEIGHTS
MAX ALTITUDE BEFORE REZONE
TOTAL NUMBER OF WORDS IN DATASET IS 39
```

NUMBER 81

```
(HI) ---HIGH ALTITUDE BURST EVENT DATASET
WORD  TYPE  MNEMONIC
1  I  KTYPE HI
2  R  TIME HI
3  DSP  DSPFB HI
4  I  IFLAG HI
TOTAL NUMBER OF WORDS IN DATASET IS 4

--ITEM IDENTIFICATION--
TYPE OF THIS EVENT (12)
TIME OF THIS EVENT
POINTER TO FIREBALL FOR THIS EVENT
OVERLAY FLAG
```

NUMBER 82

```
(SI) ---SIGNAL PROCESSING INPUTS
WORD  TYPE  MNEMONIC
1  R  TIME SI
2  R  FREQ SI
3  R  RADP SI
13 R  RVEC SI
14 R  REMW SI
15 R  US SI
16 R  RN SI
17 R  FPC SI
18 R  SL SI
19 R  SN SI
20 R  RSQ SI
21 R  RSQ SI
22 R  RSQ SI
TOTAL NUMBER OF WORDS IN DATASET IS 22

--ITEM IDENTIFICATION--
TIME FOR THIS LOOK
RADAR FREQUENCY
RADAR POSITION
BORESIGHT VECTOR
RADAR BEAMWIDTH
SIGNAL HANDWIDTH
NOISE BANDWIDTH
PULSE COMPRESSION RATIO
RANGE SIDELOBE REDUCTION FACTOR
SIGNAL-TO-NOISE THRESHOLD
RANGE ON ONE SQUARE METER TARGET
```

NUMBER 83

```
(SP) ---SIGNAL PROCESSING OUTPUTS
WORD  TYPE  MNEMONIC
1  R  Y SP
2  R  XT SP
3  R  S1 SP
4  R  XLOM SP

--ITEM IDENTIFICATION--
TRIAL SIGNAL-TO-NOISE LEVEL
TOTAL NOISE PLUS CLUTTER POWER
RECEIVED SIGNAL POWER INCLUDING LOSSES
MAXIMUM ABSORPTION PARAMETER
```


NUMBER 83

(SP) ---SIGNAL PROCESSING OUTPUTS
 WORD TYPE MNEMONIC
 5 R SP
 6 R ZV
 7 R ZV
 8 R ZV
 9 R ZV
 10 R ZV
 11 R ZV
 12 R ZV
 TOTAL NUMBER OF WORDS IN DATASET IS 12

NUMBER 84

(RP) ---
 WORD TYPE MNEMONIC
 1 R PT
 2 R DSINC
 3 R TEMP
 4 R WHOD
 5 R ENE
 6 R UELAZ
 7 R DELEL
 8 R VNEUT
 9 R VION
 10 R DA
 11 R DINC
 12 R SIZE
 13 R RHO
 14 R ENO
 15 R DIST
 16 R SCAN
 17 R
 18 R
 19 R
 20 R
 TOTAL NUMBER OF WORDS IN DATASET IS 20

NUMBER 85

(P2) ---PLATFORM TYPE 2 -- TRAIT ORBITAL ELEMENTS
 WORD TYPE MNEMONIC
 1 H KTYPE P2
 2 R OHREL P2
 TOTAL NUMBER OF WORDS IN DATASET IS 11

NUMBER 86

(P3) ---PLATFORM TYPE 3 FOR CIRCULAR ORBITS
 WORD TYPE MNEMONIC
 1 H KTYPE P3
 2 H AINC P3
 3 R ALCC P3
 4 R OLCC P3
 5 R TIME P3
 6 H PERI P3
 TOTAL NUMBER OF WORDS IN DATASET IS 6

NUMBER 87

(E9) ---PHYSICS SEQUENCE EVENT DATASET
 WORD TYPE MNEMONIC
 1 I KTYPE E9
 2 R TIME E9
 3 R TIME E9
 4 H KFLAG E9
 TOTAL NUMBER OF WORDS IN DATASET IS 4

NUMBER 88

(FB) ---FIREBALL DATASET
 WORD TYPE MNEMONIC
 1 H TYPE FB
 TOTAL NUMBER OF WORDS IN DATASET IS 1

NUMBER 88

```
(FB) ---FIREBALL DATASET
WORD  TYPE  MNEMONIC
2      I      KINDF FB
3      I      INDXF FB
4      R      RHP FB
5      R      RLF FB
6      R      FBPCS FB
9      R      FBVEL FB
12     R      HF FB
13     R      RDOT FB
14     R      RDOT FB
15     R      RHP FB
16     R      HSF FB
17     R      TF FB
18     R      SF FB
19     R      TIME FB
20     R      TSR FB
21     R      MHMF FB
22     R      MHMF FB
23     R      TILTF FB
24     R      ROT FB
25     R      RVT FB
26     R      RVL FB
27     R      VOV FB
28     R      RVAL FB
29     R      RTREF FB
30     R      TVOHT FB
31     R      FE FB
32     R      TCHAR FB
33     I      MHGID FB
34     DSP     XMPG FB
35     DSP     BTYPE FB
36     LHV     DEBL FB
37     DSP     DSPH2 FB
38     DSP     DSPUS FB
39     DSP     DSPBP FB
40     DSP     STRIA FB
41     H      HUMST FB

TOTAL NUMBER OF WORDS IN DATASET IS 41

---ITEM IDENTIFICATION---
FIREBALL TYPE FLAG
FIREBALL INDEX NUMBER
TRANSVERSE RADIUS
LATERAL RADIUS
FIREBALL POSITION
FIREBALL VELOCITY
FIREBALL ALTITUDE
RISE RATE
EXPANSION RATE
DENSITY AT A SPECIFIED POINT
DENSITY SCALE HEIGHT
TEMPERATURE
STRIATION FRACTION
BURST TIME
TIME SINCE BURST
MIN ALTITUDE OF REGION
MAX ALTITUDE OF REGION
TILT FROM VERTICAL
ROTATION ANGLE OF AXIS FROM MAG NORTH
TRANSVERSE RADIUS OF VORTEX
LATERAL RADIUS OF VORTEX
VOLUME OF VORTEX
PARAMETER USED IN OVAL OF CASSINI DEFINITION
HORIZONTAL DISTANCE TO REFERENCE POINT IN OVAL (CM)
VORTEX BOUNDARY TEMPERATURE (DEG K)
ENTRAINMENT FACTOR
CHARACTERISTIC MERGING TIME
MERGE IDENTIFICATION
DSP TO NEW FB DATASET
POINTER TO BOMB TYPE (BB)
DEBRIS LIST (DD)
POINTER TO FIREBALL PROPERTIES AT SOME FUTURE TIME
POINTER TO DUST DATASET (DS)
POINTER TO BURST PARAMETERS DATASET (BP)
POINTER TO FIREBALL STRIATION PARAMETERS DATASET (SR)
SET TO -ORIGINAL- IF ORIGINALLY A DETONATION.
```

NUMBER 89

```
(SR) ---FIREBALL STRIATION PARAMETERS DATASET
WORD  TYPE  MNEMONIC
1      R      SIZE SR
2      R      RHO SR
3      R      SCAN SR

TOTAL NUMBER OF WORDS IN DATASET IS 3

---ITEM IDENTIFICATION---
AVERAGE STRIATION SIZE
STRIATION DENSITY
SCAN ANGLE LIMIT
```

NUMBER 90

```
(DD) ---DEBRIS DATASET
WORD  TYPE  MNEMONIC
1      H      DLABL DD
2      I      IOLFL DD
3      P      WOR DD

---ITEM IDENTIFICATION---
DEBRIS TYPE
FLAG DESIGNATING SHAPE
YIELD (ERGS)
```

NUMBER 90

(DD) ---DEBRIS DATASET

WORD	TYPE	MEMORIC
1	R	MOR DD
2	R	RTS DD
3	R	PLS DD
4	R	RNS DD
5	R	ATO DD
6	R	VOLD DD
7	R	UBPOS DD
8	R	TFZ DD
9	R	OSP DD
10	R	OSP DD
11	R	OSP DD
12	R	OSP DD
13	R	OSP DD
14	R	OSP DD
15	R	OSP DD
16	R	OSP DD
17	R	OSP DD

TOTAL NUMBER OF WORDS IN DATASET IS 17

---ITEM IDENTIFICATION---

ALTITUDE OF DEBRIS (CM)
HORIZONTAL RADIUS OF REGION (CM)
VERTICAL RADIUS OF REGION (CM)
DEBRIS DISTRIBUTION PARAMETER
RADIUS OF EQUIVALENT SPHERE (CM)
DEBRIS VOLUME (CC)
DEBRIS POSITION
MAGNETIC FREEZING TIME DATASET (BE)
POINTER TO BETA TUBE DATASET (BE)
POINTER TO FIREBALL (FB)
POINTER TO DEBRIS PROPERTIES AT FUTURE TIME (D2)
POINTER TO OLD MERGED FIREBALL DATASET
TOTAL NUMBER OF WORDS IN DATASET IS 17

NUMBER 91

(BE) ---BETA TUBE AND SHEATH DATASET

WORD	TYPE	MEMORIC
1	H	TUBE TYPE--STRAIGHT OR KINK
2	R	RADIUS FACTOR FOR SIZING OUTER BETA REGION
3	R	INITIAL ALTITUDE
4	R	INITIAL DIP
5	R	KINK ANGLE WITH RESPECT TO HORIZONTAL
6	R	DISTANCE FROM SUB-BURST POINT TO KINK
7	R	POSITION OF CENTRAL FIELD LINE AT 85KM
8	R	N-S RADIUS OF INNER REGION AT 85KM
9	R	E-W RADIUS OF INNER REGION AT 85KM
10	R	POSITION OF CENTRAL FIELD LINE AT 60KM
11	R	N-S RADIUS OF INNER REGION AT 60KM
12	R	E-W RADIUS OF INNER REGION AT 60KM
13	R	FRACTION OF DEBRIS INSIDE SHEATH
14	R	FRACTION OF DEBRIS INSIDE SHEATH
15	R	SHEATH THICKNESS
16	R	PENETRATION DISTANCE OUTSIDE SHEATH
17	R	MAGNETIC FIELD STRENGTH INSIDE SHEATH
18	R	MAGNETIC FIELD STRENGTH INSIDE SHEATH
19	R	MAGNETIC FIELD STRENGTH INSIDE SHEATH
20	R	MAGNETIC FIELD STRENGTH INSIDE SHEATH
21	R	MAGNETIC FIELD STRENGTH INSIDE SHEATH

TOTAL NUMBER OF WORDS IN DATASET IS 21

---ITEM IDENTIFICATION---

TUBE TYPE--STRAIGHT OR KINK
RADIUS FACTOR FOR SIZING OUTER BETA REGION
INITIAL ALTITUDE
INITIAL DIP
KINK ANGLE WITH RESPECT TO HORIZONTAL
DISTANCE FROM SUB-BURST POINT TO KINK
POSITION OF CENTRAL FIELD LINE AT 85KM
N-S RADIUS OF INNER REGION AT 85KM
E-W RADIUS OF INNER REGION AT 85KM
POSITION OF CENTRAL FIELD LINE AT 60KM
N-S RADIUS OF INNER REGION AT 60KM
E-W RADIUS OF INNER REGION AT 60KM
FRACTION OF DEBRIS INSIDE SHEATH
FRACTION OF DEBRIS INSIDE SHEATH
SHEATH THICKNESS
PENETRATION DISTANCE OUTSIDE SHEATH
MAGNETIC FIELD STRENGTH INSIDE SHEATH
MAGNETIC FIELD STRENGTH INSIDE SHEATH
MAGNETIC FIELD STRENGTH INSIDE SHEATH
MAGNETIC FIELD STRENGTH INSIDE SHEATH
MAGNETIC FIELD STRENGTH INSIDE SHEATH

NUMBER 92

(BP) ---BURST PARAMETERS DATASET

WORD	TYPE	MEMORIC
1	DSP	DSPFI BP
2	DSP	DSPFI BP
3	R	POS BP
4	R	HR BP
5	R	ETGAD BP
6	R	ETGAD BP
7	R	ETGAD BP
8	R	ETGAD BP
9	R	ETGAD BP
10	R	ETGAD BP
11	R	ETGAD BP
12	R	ETGAD BP
13	R	ETGAD BP
14	R	ETGAD BP
15	R	ETGAD BP

TOTAL NUMBER OF WORDS IN DATASET IS 15

---ITEM IDENTIFICATION---

POINTER TO FIREBALL (FB)
POINTER TO FIREBALL INTERACTIONS DATASET (FI)
BURST POSITION
HEIGHT OF BURST (OR PRESENT ALT..) (MB)
TOTAL YIELD IN ERGS
FISSION YIELD IN ERGS
HYDRO YIELD IN ERGS
NEUTRON YIELD IN ERGS
XRAY YIELD IN ERGS
ENERGY FRACTION OF BURST 1
ENERGY FRACTION OF BURST 2
DENSITY FOR BURST 2
TOTAL ENERGY IN 6TH BAND

58 FA

(BP) ---BURST PARAMETERS DATASET

WORD	TYPE	MEMORIC	DESCRIPTION
16	R	RHOB BP	AMBIENT RHO AT BURST PT.
17	R	MSB BP	SCALE HT. AT BURST POINT
18	R	TEMS BP	AMBIENT TEMP AT BURST PT.
19	R	RHO BP	INITIAL HORIZONTAL RADIUS
20	R	TEOM BP	TIME TO REACH 2000 DEG FIREBALL TEMPERATURE
21	R	TEOW BP	TIME TO REACH 3000 DEG FIREBALL TEMPERATURE
22	R	RHOOM BP	FIREBALL DENSITY AT TEOM
23	R	RHOON BP	FIREBALL DENSITY AT TEOW
24	R	REFT BP	REFERENCE TEMPERATURE OF STEEP GRADIENT REGION
25	R	BVEC BP	MAGNETIC FIELD VECTOR AT BURST POINT
26	I	IC BP	CELL INDEX IN X-DIRECTION
27	I	JC BP	CELL INDEX IN Y-DIRECTION
28	I	KC BP	CELL INDEX IN Z-DIRECTION
29	I	FRCO BP	FRACTION OF DISTANCE BETWEEN FB CENTER AND CELL BOTTOM
30	I	FRCO BP	FRACTION OF DISTANCE BETWEEN FB CENTER AND CELL BOTTOM
31	I	FRCO BP	FRACTION OF DISTANCE BETWEEN FB CENTER AND CELL BOTTOM
32	R	XARG BP	RATIO OF TEMPERATURE OF CELL TO INITIAL FB TEMPERATURE
33	C		NOTE THAT -EC+CA+CB- OF THE EVASV COMMON BLOCK HAVE BEEN RENAMED. CATCH ALL REFERENCES TO THEM IN THE CODE NUMFRS AND LETTERS IN THE RIGHT HAND MARGIN ARE THE LOCATIONS AND MNEMONICS FOR THE ORIGINAL MRC PROVIDED CODE
34	R	T0 BP	TO (1-41)
35	R	T1 BP	T1 (1-36)
36	R	T2 BP	T2 (1-42) OR (1-50) SEE MODLON,164, MR=4, CASE/P1-32
37	R	T3 BP	T3 (1-52) END OF CONSTANT VELOCITY RADIAL EXPANSION PHASE
38	R	T4 BP	T4 (1-57+1-58) END OF 3RD EXPANSION PHASE
39	R	T5 BP	T5 = ** MODLON,272
40	R	TEO BP	TEO (1-51) TIME FOR MAG. CONTAINMENT
41	R	TD BP	TD -DWELL TIME- END OF UNIFORM ACCEL FROM 0 TO VO RISE RATE (1-77A+B)
42	R	TAU BP	TAU CHARACTERISTIC RISE TIME (1-75A+B)
43	R	TAC BP	TAC(1-78) CENTER APOGEE TIME
44	R	TT BP	TT(MODLON,174) -MODLON,197 IONOS FORMATION TIME
45	R	TMAX BP	TMAX (TIME OF THERMAL MAXIMUM) (1-163)
46	R	TAZ BP	TAZ(1-137A+C) ALT. -FREEZE- TIME BEFORE WHICH TO RISE OF META
47	R	TRFZ BP	TRFZ
48	R	RM BP	INITIAL BLAST RADIUS (RHO UNLESS MERGES OCCUR)
49	R	RHM BP	HORIZONTAL MAG. CYNMENT RADIUS RHM(1-10)
50	R	RO BP	RO(1-16) (1-17) INITIAL DOWNWARD RADIUS
51	R	ROM BP	ROM(1-22) DOWNWARD MAG. STOPPING RADIUS
52	R	RU BP	RU(1-26) INITIAL UPWARD RADIUS
53	R	RUM BP	RUM(1-27) UPWARD MAG. STOPPING RADIUS
54	R	RLI BP	RLI(1-29) INITIAL VERT. RADIUS
55	R	RTI BP	RTI(1-30) INIT HORIZ. RADIUS -- SEE MR=4, ON P1-32
56	R	RT2 BP	RT2 (1-40) BUT SEE MODLON,160 1-49--ALSO MR=4 .P1-32
57	R	RM BP	RM MAGNETIC RADIUS (MR=ELATE MAG.)

PART 1.4 - DATASET LIST BY MNEMONIC

(BP) ---BURST PARAMETERS DATASET				NUMBER 92	
NORD	TYPE	MNEMONIC			
58	R	RT3	HP	25	EK
				26	BK
59	R	RT4	BP	26	BL
60	R	RTMAX	BP	27	BM
61	R	ROEBO	BP	28	BU
62	R	FUVT	BP	29	CA
63	R	FUVH	BP	30	CB
				31	CC
64	R	F3	BP	32	CD
65	R	F4	BP	33	CE
66	R	F5	BP	34	CF
67	R	F6	BP	35	CG
68	R	F7	BP	36	CH
69	R	FX	BP	37	DA
70	R	V0	BP	38	DB
71	R	VEXP	BP	39	DC
72	R	VM	BP	40	DD
73	R	V4	BP	41	DE
74	R	VREAV	BP	42	DF
75	R	VF	BP	43	EA
76	R	BMAG	BP	44	EB
77	R	RPRIM	BP	45	EC
78	R	VOL1	BP	46	ED
79	R	VOL3	BP	47	EE
80	R	GAMMA	BP	48	EF
81	R	RHOFO	BP	49	EG
82	R	HSD	BP	50	EH
83	R	HS1	BP	51	EP
84	R	AMASS	BP	52	EQ
85	R	ENDO	BP	53	ER
86	R	RHO	BP	54	ES
87	R	VMAX	BP	55	EU
88	R	HBMAG	BP	56	EV
89	R	DELH	BP	57	EW
				58	FB
90	R	DMAX	BP	59	FC
91	R	ZM	BP	60	FD
92	R	TFO	BP	61	FE
93	R	TEM3	BP	62	FF
				63	FG
94	R	RN	BP	64	HH
95	R	SD	BP	65	HN
96	I	MR	BP	66	SO
				67	MR
97	R	TILTF	BP	68	HA
				69	HA

--ITEM IDENTIFICATION--
RT3 (1-53) RADIUS AT T3(END OF COAST V. RADIAL EXPANSION PHASE.)
RT4 (1-60) RAD. AT ALT. STABILIZATION TIME, T4
RTMAX(1-164) RAD. AT TIME OF THERMAL MAXIMUM
ROEBO(1-105) INIT. DEBRIS RADIUS (AT T1)
FUVT(1-73) TOTAL FRACT. OF HYD. ENERGY CONV. TO UV.
FUVH (1-34) FRACTION HYDRO ENERGY CONVERTED TO UV IN HORIZ. DIRECTION.
F1 (1-4) IONIZATION FRACTION
FCFM (1-5) CHARGE EXCHANGE LOSS (HORIZONTAL)
FCEU (1-12) CHARGE EXCHANGE LOSS FRACTION (DOWN)
FCEU (1-13) CHARGE EXCHANGE LOSS FRACTION (UP)
MOULON.63
CX OF (1-9) PRODUCED BY MOXC(X=1-FCONT)
SUBROUTING WITH PHASE=HOBARM
V0(1-72) INITIAL RISE VELOCITY
VEXP(1-28) EXP. RATE BETWEEN T2, T3
VM(1-62) (64B, 65) LATE EXPANSION VELOCITY
V4(1-62) (64B, 65) LATE EXPANSION VELOCITY
UPWARD VELOCITY OF ATMOS. SET TO -0.1 IN MOULON.29
VA VELOCITY OF EXPANSION ALONG MAG. FIELD (1-65)
MAGNITUDE, OF MAG. FIELD VECTOR (X MAG(BVEC BP) AT BURST POINT)
RHO PRIME (1-6)
V (INITIAL VOLUME) (1-168A)
VOLUME AT TIME T3
GAMMA(1-167) (64B, 65) EXP. VALUE TO BE USED IN ADIABATIC FORMULA(1-162) FOR TIME TMAX, LE. T. LE. T3
PU(1-176) (64B, 65) INITIAL DENSITY AT BOTTOM OF FIREBALL MOULON.248
HS1(1-177) INITIAL DENSITY SCALE HT. INSIDE FB
M(1-179) (64B, 65) MASS OF FIREBALL
NREAO (1-160) DEBRIS DISTRIB. PARAMETER
SEA-LEVEL DENSITY (RHOZRO IN CONCON)
VOLUME AT TIME TMAX
TAKEN FROM CONNH (ONCE) UNIVERSAL HBMHG
DELTAH (1-31) -CENTER- LOCATION (Z0)
(ABOVE OR BELOW BURST POINT)
DELTAHMAX(1-76) MAX ALT. INTERVAL FOR RISE IN PHASE 3 (UNKNOWN)
T0(1-165) (64B, 65) INITIAL TEMPERATURE
TEMPERATURE AT T3(END OF ADEABATIC EXPANSION)
1-162 MOULON.2.34
NEXP (1-56) EXPANSION EXPONENT
SIN OF MAG. DIP ANGLE AT BURST POINT
1-2.3.44 MB. LE. BMAG AND. RM. GT. HB
1= SURFACE, 2= FREE AIR, 3= LATE MAGNETIC, 4= INIT. MAGNETIC
ANGLE OFF VERTICAL OF FIREBALL AXIS

NUMBER 92

69 THETA
70 DBP
71 TD1
72 TD2
73 FACT
74 VBU
75 ADP
76 BA2
77 RPM

(BP) ---BURST PARAMETERS DATASET

WORD	TYPE	MNEMONIC
98	R	THETA BP
99	R	DBP
100	R	TD1
101	R	TD2
102	R	FACT
103	R	VBU
104	R	ADP
105	R	BA2
106	R	RPM
107	R	RADY1 BP
108	R	RADY2 BP
109	R	TSCK BP
110	R	VSCK BP
111	R	OMAG BP
112	LHV	LOF BP

---ITEM IDENTIFICATION--

(UNKNOWN)
STORAGE FOR DR(VEXP) IN CASE OFFSET CHANGES DB
T01 TRANSITION TIMES BETWEEN RISE MODELS SEE 4.5*
T02 TRANSITION TIMES BETWEEN RISE MODELS * SEE 4.5, 5*
CALC. AT MDLON.78 EGN..*
V01 (1-714) INIT. RISE IN LOW ALT. REGIME
STORAGE FOR AD (T3)
RH FROM (1-75) (INIT. RADIATION FB RAD-HIGH ALT.)
MOOLON.188 RPM OF EGN* R1 CANT IDENTIFY
RADIATION YIELD FOR BURST 1 FOR MADMRGE
RADIATION YIELD FOR BURST 2 FOR MADMRGE
SHOCK ARRIVAL TIME AFTER MERGE
SHOCK VELOCITY AFTER MERGE
GROUND EFFECT SHOCK WAVE STRENGTH
LIST OF SHOCKWAVE DATASETS FROM OTHER BURSTS WHICH INFLUENCE
THE MOVEMENT OF THIS FIREBALL.

NUMBER 93

(FI) ---FIREBALL INTERACTION DATASET

WORD	TYPE	MNEMONIC
1	DSP	USPFI FI
2	R	TILTO FI
3	R	TOUR FI
4	I	KINDF FI
5	R	TUPOT FI
6	R	TRPFL FI
7	R	OFFMG FI
9	R	VSCK FI

TOTAL NUMBER OF WORDS IN DATASET IS 12

---ITEM IDENTIFICATION--

POINTER TO FIREBALL (FB)
INITIAL TILT
TYPE OF INTERACTION
UPDATE TIME BASED ON INTERACTIONS
TIME FOR REJECTED SHOCK TO REACH FB
MAGNITUDE OF OFFSET DUE TO SHOCKS
VELOCITY DUE TO SHOCKS
TOTAL NUMBER OF WORDS IN DATASET IS 9

NUMBER 94

(EF) ---EDITED FIREBALL DATASET FOR USE IN HYDRO

WORD	TYPE	MNEMONIC
1	R	T1
2	R	R1
3	R	P1
6	R	T2
7	R	R2
8	R	P2
11	DSP	DSPFB EF
12	H	MOVE EF

TOTAL NUMBER OF WORDS IN DATASET IS 12

---ITEM IDENTIFICATION--

TIME OF START OF FIREBALL MOTION
RADIUS AT START OF FIREBALL MOTION
POSITION OF FIREBALL AT START OF MOTION
TIME AT END OF FIREBALL MOTION
RADIUS AT END OF FIREBALL MOTION
POSITION OF FIREBALL AT END OF MOTION
POINTER TO FIREBALL WHICH CAUSES THIS MOTION DATASET
FLAG = 2MNO IF TOO FAR AWAY TO MOVE POINT, 3YES OTHERWISE
TOTAL NUMBER OF WORDS IN DATASET IS 12

NUMBER 95

(M2) ---FIREBALL PARAMETERS AT FUTURE TIME

WORD	TYPE	MNEMONIC
1	H	TYPE M2
2	I	KINDF M2
3	I	INDXF M2
4	R	RTF M2
5	R	HLF M2
6	R	FBPOS M2
9	R	FBVEL M2

---ITEM IDENTIFICATION--

HIGH OR LOW
FIREBALL TYPE FLAG
FIREBALL INDEX NUMBER
TRANSVERSE RADIUS
LATERAL RADIUS
FIREBALL POSITION
FIREBALL VELOCITY

NUMBER 95

(M2) ---FIREBALL PARAMETERS AT FUTURE TIME
 WORD TYPE MNEMONIC
 12 R HF
 13 R HOF
 14 R RHO
 15 R RHOF
 16 R HSF
 17 R TF
 18 R SF
 19 R TIME
 20 R TSB
 21 R HMINF
 22 R HMAAF
 23 R TILTF
 24 R ROT
 25 R RVT
 26 R RVL
 27 R VOV
 28 R BVAL
 29 R RTREF
 30 R TVORT
 31 R FE
 32 R TCHAF
 33 R MRGID
 34 R XMRG
 TOTAL NUMBER OF WORDS IN DATASET IS 34
 ---ITEM IDENTIFICATION---
 FIREBALL ALTITUDE
 RISE RATE
 EXPANSION RATE
 DENSITY AT A SPECIFIED POINT
 DENSITY SCALE HEIGHT
 TEMPERATURE
 STRIATION FRACTION
 BURST TIME
 TIME SINCE BURST
 MIN ALTITUDE OF REGION
 MAX ALTITUDE OF REGION
 TILT FROM VERTICAL
 ROTATION ANGLE OF AXIS FROM MAG NORTH
 TRANSVERSE RADIUS OF VORTEX
 LATERAL RADIUS OF VORTEX
 VOLUME OF VORTEX
 PARAMETER USED IN OVAL OF CASSINI DEFINITION
 HORIZONTAL DISTANCE TO REFERENCE POINT IN OVAL (CM)
 VORTEX BOUNDARY TEMPERATURE (DEG K)
 ENTRAINMENT FACTOR
 CHARACTERISTIC MERGING TIME
 MERGE IDENTIFICATION
 USP TO NEW FB DATASET

NUMBER 96

(D2) ---DEBRIS PROPERTIES AT TIME T2
 WORD TYPE MNEMONIC
 1 H ULABL
 2 I IDFLG
 3 R WDR
 4 R HDR
 5 R RTBS
 6 R RLBS
 7 R RNBS
 8 R RTD
 9 R VOLU
 10 R DRPOS
 TOTAL NUMBER OF WORDS IN DATASET IS 12
 ---ITEM IDENTIFICATION---
 DEBRIS TYPE
 FLAG DESIGNATING SHAPE
 YIELD (ERGS)
 ALTITUDE OF DEBRIS CENTER (CM)
 HORIZONTAL RADIUS (CM)
 VERTICAL RADIUS (CM)
 DEBRIS DISTRIBUTION PARAMETERS
 RADIUS OF EQUIVALENT SPHERE (CM)
 DEBRIS VOLUME (CC)
 DEBRIS POSITION
 TOTAL NUMBER OF WORDS IN DATASET IS 12

NUMBER 97

(OF) ---INCOMING SHOCKWAVE DATASET, ON -LOF BP- LIST FOR THE AFFECTED
 WORD TYPE MNEMONIC
 1 DSP
 2 DTARR
 3 OFMAG
 TOTAL NUMBER OF WORDS IN DATASET IS 3
 ---ITEM IDENTIFICATION---
 BURST
 POINTER TO THE FIREBALL WHICH IS PRODUCING THIS SHOCK EFFECT
 DELTA TIME OF ARRIVAL FOR THE SHOCK
 MAGNITUDE OF THE ARRIVING SHOCK

NUMBER 98

(ES) ---STRIATION EVENT DATASET
 WORD TYPE MNEMONIC
 1 I KTYPE
 2 R TIME
 TOTAL NUMBER OF WORDS IN DATASET IS 2
 ---ITEM IDENTIFICATION---
 EVENT TYPE (=13)
 TIME OF THIS EVENT (SEC)

NUMBER 98

```

(ES) ---STRIATION EVENT DATASET
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
3      R    INEX ES    UPDATE TIME (SEC)
4      I    INACK ES   FLAG FOR RESETTNG STRIATION DATA
TOTAL NUMBER OF WORDS IN DATASET IS 4

```

NUMBER 99

```

(BF) ---BETA TUBE FORMAT DATASET
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
1      R    TIME BF    TIME OF OUTPUT
2      I    INDX BF    FIREBALL INDEX
3      H    TYPE BF    HOLLERITH FLAG DESCRIBING SHAPE (STRAIGHT OR KINK)
4      R    THETA BF   INITIAL DIP ANGLE
5      P    PHI BF     KINK ANGLE WITH RESPECT TO HORIZONTAL
6      R    EL BF      DISTANCE FROM SUB-BURST POINT TO KINK
7      R    R85N BF     N-S RADIUS OF INNER REGION AT 85 KM
8      R    R85E BF     E-W RADIUS OF INNER REGION AT 85 KM
9      R    R60N BF     N-S RADIUS OF INNER REGION AT 60 KM
10     R    R60E BF     E-W RADIUS OF INNER REGION AT 60 KM
TOTAL NUMBER OF WORDS IN DATASET IS 10

```

NUMBER100

```

(M1) ---LOW ALTITUDE FIREBALL PARAMETERS FOR MRC MODEL
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
1      R    ARRAY OF C-CONSTANTS
TOTAL NUMBER OF WORDS IN DATASET IS 32

```

NUMBER101

```

(M2) ---LOW ALTITUDE FIREBALL PARAMETERS FOR MRC MODEL
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
1      R    ARRAY OF D-CONSTANTS
TOTAL NUMBER OF WORDS IN DATASET IS 17

```

NUMBER102

```

(NE) ---POINT PROPERTIES EVENT DATASET
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
1      I    EVENT TYPE=19
2      R    TIME NE    TIME OF THIS EVENT
3      R    FREQ NE    RADAR FREQUENCY (HZ)
4      R    PT NE      POINT OF INTEREST (CM)
7      R    UVEC NE    HORIZONTAL UNIT VECTOR FROM FB CENTER
10     DSP  DSPFB NE   POINTER TO FIREBALL DATASET (PB)
11     DSP  CO NE      POINTER TO CHEN OUTPUT DATASET (CO)
TOTAL NUMBER OF WORDS IN DATASET IS 11

```

NUMBER103

```

(PG) ---PROMPT ENERGY DEPOSITION EVENT DATASET
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
1      I    KTYPE PG   EVENT TYPE=14
2      R    TIME PG    TIME OF THIS EVENT
3      DSP  DSPFB PG   POINTER TO FIREBALL DATASET(FB)
TOTAL NUMBER OF WORDS IN DATASET IS 3

```

NUMBER104

```

(UP) ---LOW ALTITUDE UPDATE EVENT DATASET
WORD  TYPE  MNEMONIC  --ITEM IDENTIFICATION--
1      I    KTYPE UP   EVENT TYPE=15
2      R    TIME UP    TIME OF THIS EVENT
3      H    KFLAG UP   TYPE OF EVENT (=3HLOW)
4      R    TNEW UP    UPDATE TIME FOR THIS EVENT
TOTAL NUMBER OF WORDS IN DATASET IS 4

```


PART 1.3 - DATASET LIST BY NAME

MEMORIC	---DATASET NAME---	NUMBER
AT	ATTACK SEPARATION EVENT (TYPE 1)	9
AD	ATTACK TYPE DATASET	2
B0	BASIC DATA SET	8
R4	BETA MODEL 1 - CONSTANT VALUE DATASET	23
B3	BETA MODEL 3 - CONE DYNAMIC	24
RR	ROMB TYPE DATASET	56
HR	HORESTIGHT DATASET	16
EB	BURST EVENT DATASET	55
B0	BURST PARAMETERS	38
B0	CALCULATED WEPN. DEP. DATA FOR GAMMA DEPOSITION	64
36	CALCULATED WEPN. DEP. DATA FOR NEUTRON DEPOSITION	65
3N	CALCULATED WEPN. DEP. DATA FOR X-RAY DEPOSITION	63
3X	CHEM OUTPUT DATASET	45
CB	CHEM OUTPUT DATASET	44
CO	DATA REQUIRED TO IMPLEMENT THE RALMAN FILTER	11
TF	DISCRIMINATION INPUT DATASET	66
DV	DISCRIMINATION OUTPUT DATASET	53
DI	DUST DATASET	54
DO	DUST PARTICLE DATASET	49
DS	DUST PARTICLE DATASET	50
UP	ENVIRONMENT OUTPUT EVENT	42
D1	FIREBALL POSITION OUTPUT DATASET	51
D1	FIREBALL SET-4 PARAMETERS	37
FO	FORMAT DATASET FOR GRAPHICAL OUTPUT AS CALCOMP PLOTS	43
FP	FORMAT DATASET FOR THE GRAPHICAL OUTPUT AS CALCOMP PLOTS	48
GP	F1 PARAMETERS	47
CL	F2 PARAMETERS	39
F1	F3 PARAMETERS	40
F1	GAMMA WEPN. DEPENDENT DATA FOR INITIALIZATION ONLY.	41
F2	GRID OUTPUT DATASET	68
F3	HEAVE PARAMETERS DATASET	52
4G	HIGH ALTITUDE BURST EVENT DATASET	80
GO	IMPACT EVENT DATASET	81
CT	LAUNCH EVENT DATASET	20
HI	LAUNCH POINT DATASET	19
MI	MAGNETIC FIELD DATASET	12
NI	MANDATORY POINT DATASET	46
TE	NEUTRON WEPN. DEPENDENT DATA FOR INITIALIZATION ONLY.	72
LE	OBJECT DATASET	49
LP	OBJECT POSITION DATASET	3
NG	OBJECT TYPE DATASET	6
MP	PHYSICS SEQUENCE EVENT DATASET	4
4N	PLATFORM TYPE-1 (FIXED) DATASET	87
OB	PLATFORM TYPE 2 -- TRAID ORBITAL ELEMENTS	15
OP	PLATFORM TYPE 3 FOR CIRCULAR ORBITS	85
OT	PROMPT SOURCES DATASET	86
E9	PROPAGATION INPUTS DATASET	73
P1	PROPAGATION OUTPUT DATASET	71
P1	RADAR BEAMSHAPE MODEL-1 DATASET	79
P2		17
P3		
PS		
PI		
PP		
BI		

MNEMONIC	---DATASET NAME----	NUMBER
RD	RADAR DATASET	7
RE	RADAR ERRORS DATASET	18
E4	RADAR LOOK EVENT DATASET	10
RS	RADAR SIGNAL PROCESSING DATASET	33
RT	RADAR TYPE DATASET	13
H1	RCS MODEL 1 - CONSTANT DATASET	26
R2	RCS MODEL 2 - RCS VS ASPECT DATASET	29
R3	RCS MODEL 3 - TANKS	30
R4	RCS MODEL 4 - RVs AND DECOYS	31
RL	REAL TARGETS DATASET	34
S4	SEARCH MODE DATASET	14
SH	SHEATHING MODEL DATASET	27
SI	SIGNAL PROCESSING INPUTS	82
SP	SIGNAL PROCESSING OUTPUTS	83
BT	STORAGE ALLOCATION FOR OBJECT BETA-TABLE	5
ID	SUMMARY OUTPUT DATASET	36
SO	SYSTEM OUTPUT DATASET	75
GR	TARGET GROUP DATASET	74
TI	TARGET IMAGES DATASET	35
TG	TARGET POINT DATASET	1
FL	TRACKFILE DATA SET (FOR C/C ORGANIZATION)	22
TK	TRACK FILTER DATASET FOR THE EXTENDED KALMAN FILTER	21
TD	TRACK FILTER OUTPUT DATASET	78
TE	TRACK MEASUREMENT ERRORS DATASET	77
TM	TRACK MODE DATASET	32
TR	TRAJECTORY OUTPUT DATASET	76
T1	TUMBLING MODEL 1 * 2	25
T3	TUMBLING MODEL 3	26
SC	WEAPON INDEPENDENT SPECTRAL ENERGY DISTRIBUTION DATA	70
2G	WEPN. INDEP. INPUT DATA FOR GAMMA CALCS. (INITIALIZATION)	61
1G	WEPN. INDEP. INPUT DATA FOR GAMMA DEPOSITION CALCULATIONS	58
2N	WEPN. INDEP. INPUT DATA FOR NEUTRON CALCS. (INITIALIZATION)	62
1N	WEPN. INDEP. INPUT DATA FOR NEUTRON DEPOSITION CALCULATIONS	59
2X	WEPN. INDEP. INPUT DATA FOR X-RAY CALCS. (INITIALIZATION)	60
1X	WEPN. INDEP. INPUT DATA FOR X-RAY DEPOSITION CALCULATIONS	57
4X	X-RAY WEPN. DEPENDENT DATA FOR INITIALIZATION ONLY.	67
RP	BETA TUNE AND SHEATH DATASET	84
BE	BETA TUBE FORMAT DATASET	91
BF	BURST PARAMETERS DATASET	99
BP	DEHRIS DATASET	92
DD	DEHRIS PROPERTIES AT TIME T2	90
D2	EDITED FIREBALL DATASET FOR USE IN HYDRO	96
EF	FIREBALL DATASET	94
F8	FIREBALL INTERACTION DATASET	88
FI	FIREBALL PARAMETERS AT FUTURE TIME	93
H2	FIREBALL STRIATION PARAMETERS DATASET	95
SR	INCOMING SHOCKWAVE DATASET, ON -LOF RP- LIST FOR THE AFFECTED	89
OF	LOW ALTITUDE FIREBALL PARAMETERS FOR MRC MODEL	97
M1	LOW ALTITUDE FIREBALL PARAMETERS FOR MRC MODEL	100
M2	LOW ALTITUDE FIREBALL PARAMETERS FOR MRC MODEL	101

NUMBER
104
102
103
98

-----DATASET NAME-----
MNEMONIC
UP LOW ALTITUDE UPDATE EVENT DATASET
RE POINT PROPERTIES EVENT DATASET
PG PROMPT ENERGY DEPOSITION EVENT DATASET
ES STRIATION EVENT DATASET

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PART 1.6 - DATASET CALLS

NUMBER	NAME
2	AD ATTACK TYPE DATASET
9	AT ATTACK GENERATION EVENT (TYPE 1)
56	BB HOMB TYPE DATASET
91	BE BETA TUBE AND SHEATH DATASET
99	BF BETA TUBE FORMAT DATASET
38	BO BURST PARAMETERS DATASET
92	BP BURST PARAMETERS DATASET
16	BR BORESIGHT DATASET
5	BT STORAGE ALLOCATION FOR OBJECT BETA-TABLE
8	B0 BASIC DATA SET
17	B1 RADAR HEADSHAPE MODEL-1 DATASET
24	B3 BETA MODEL 3 - CONE DYNAMIC
23	B4 BETA MODEL 1 - CONSTANT VALUE DATASET
45	C9 CHEM BURST DATASET
47	CL FORMAT DATASET FOR THE GRAPHICAL OUTPUT AS CALCOMP PLOTS
44	CO CHEM OUTPUT DATASET
80	CT HEAVE PARAMETERS DATASET
90	DD DEBRIS DATASET
53	DI DISCRIMINATION INPUT DATASET
54	DO DISCRIMINATION OUTPUT DATASET
50	DP DUST PARTICLE DATASET
49	DV DUST DATASET
66	DS DEVICE DATA-- WEAPON DEPENDENT OUTPUT SPECTRA
42	D1 PARAMETERS
96	D2 DERRIS PROPERTIES AT TIME T2
94	EF EDITED FIREBALL DATASET FOR USE IN HYDRO
51	E0 ENVIRONMENT OUTPUT EVENT
98	E1 STRIATION EVENT DATASET
10	E4 RADAR LOOK EVENT DATASET
55	E8 BURST EVENT DATASET
87	E9 PHYSICS SEQUENCE EVENT DATASET
88	F8 FIREBALL DATASET
93	F1 FIREBALL INTERACTION DATASET
22	FL TRACKFILE DATA SET (FOR C/C ORGANIZATION)
37	FP FIREBALL POSITION OUTPUT DATASET
39	F1 PARAMETERS
40	F2 PARAMETERS
41	F3 PARAMETERS
43	F4 FIREBALL SET-4 PARAMETERS
52	G0 GRID OUTPUT DATASET
48	G9 FORMAT DATASET FOR GRAPHICAL OUTPUT AS PRINTER PLOTS
74	GR TARGET GROUP DATASET
81	H1 HIGH ALTITUDE BURST EVENT DATASET
95	H2 FIREBALL PARAMETERS AT FUTURE TIME
20	IE IMPACT EVENT DATASET
36	IO SUMMARY OUTPUT DATASET
19	LE LAUNCH EVENT DATASET
12	LP LAUNCH POINT DATASET
77	ME TRACK MEASUREMENT ERRORS DATASET
46	MG MAGNETIC FIELD DATASET

MNEMONIC	---DATASET NAME---	NUMBER
MP	MANDATORY POINT DATASET	72
M1	LOW ALTITUDE FIREBALL PARAMETERS FOR MRC MODEL	100
M2	LOW ALTITUDE FIREBALL PARAMETERS FOR MRC MODEL	101
NE	POINT PROPERTIES EVENT DATASET	102
OS	OBJECT DATASET	3
OF	INCOMING SHOCKWAVE DATASET, ON -LOF BP- LIST FOR THE AFFECTED	97
OP	OBJECT POSITION DATASET	6
OT	OBJECT TYPE DATASET	4
PG	PROMPT ENERGY DEPOSITION EVENT DATASET	103
PI	PROPAGATION INPUTS DATASET	71
PP	PROPAGATION OUTPUT DATASET	79
PS	PROMPT SOURCES DATASET	73
P1	PLATFORM TYPE 1 (FIXED) DATASET	15
P2	PLATFORM TYPE 2 -- TRAID ORBITAL ELEMENTS	85
P3	PLATFORM TYPE 3 FOR CIRCULAR ORBITS	86
RD	RADAR DATASET	7
RE	RADAR ERRORS DATASET	18
RL	REAL TARGETS DATASET	34
RP	RADAR SIGNAL PROCESSING DATASET	84
RS	RADAR TYPE DATASET	33
RT	RCS MODEL 1 - CONSTANT DATASET	13
R1	RCS MODEL 2 - RCS VS ASPECT DATASET	28
R2	RCS MODEL 3 - TANKS	29
R3	RCS MODEL 4 - RVs AND DECOYS	30
R4	WEAPON INDEPENDENT SPECTRAL ENERGY DISTRIBUTION DATA	31
SC	WEAPENING MODEL DATASET	70
SH	SIGNAL PROCESSING INPUTS	27
SI	SEARCH MODE DATASET	82
SM	SYSTEM OUTPUT DATASET	14
SO	SIGNAL PROCESSING OUTPUTS	75
SP	FIREBALL STATION PARAMETERS DATASET	83
SR	DATA REQUIRED TO IMPLEMENT THE KALMAN FILTER	89
TF	TARGET POINT DATASET	11
TG	TARGET IMAGES DATASET	1
TI	TRACK FILTER DATASET FOR THE EXTENDED KALMAN FILTER	35
TK	TRACK MODE DATASET	21
TM	TRAJECTORY OUTPUT DATASET	32
TO	TUMBLING MODEL 1 + 2	78
TR	TUMBLING MODEL 3	76
TI	LOW ALTITUDE UPDATE EVENT DATASET	25
T3	WEPN. INDEP. INPUT DATA FOR GAMMA DEPOSITION CALCULATIONS	26
UP	WEPN. INDEP. INPUT DATA FOR NEUTRON DEPOSITION CALCULATIONS	104
1G	WEPN. INDEP. INPUT DATA FOR X-RAY DEPOSITION CALCULATIONS	58
1V	WEPN. INDEP. INPUT DATA FOR GAMMA CALCS. (INITIALIZATION)	59
1X	WEPN. INDEP. INPUT DATA FOR NEUTRON CALCS. (INITIALIZATION)	57
2G	WEPN. INDEP. INPUT DATA FOR GAMMA CALCS. (INITIALIZATION)	61
2N	WEPN. INDEP. INPUT DATA FOR NEUTRON CALCS. (INITIALIZATION)	62
2X	WEPN. INDEP. INPUT DATA FOR X-RAY CALCS. (INITIALIZATION)	60
3G	CALCULATED WEPN. DEP. DATA FOR GAMMA DEPOSITION	64
3N	CALCULATED WEPN. DEP. DATA FOR NEUTRON DEPOSITION	65

NUMBER
63
68
69
67

MNEMONIC
3X
4G
4N
4X

----DATASET NAME-----
CALCULATED WEPN. DEP. DATA FOR X-RAY DEPOSITION
GAMMA WEPN. DEPENDENT DATA FOR INITIALIZATION ONLY.
NEUTRON WEPN. DEPENDENT DATA FOR INITIALIZATION ONLY.
X-RAY WEPN. DEPENDENT DATA FOR INITIALIZATION ONLY.

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PART 1.5 - VARIABLE NAME LIST

1-55

1-56

-MNEMONIC- SET	-MNEMONIC- SET	-MNEMONIC- SET	-MNEMONIC- SET
TO BP 92	TYPE CO 44	TYPE CO 44	TYPE CO 44
TO DI 53	TYPE UP 50	TYPE UP 50	TYPE UP 50
TEMR BO 38	TYPE OS 49	TYPE OS 49	TYPE OS 49
TEMR BP 92	TYPE EO 51	TYPE EO 51	TYPE EO 51
TEMP BP 84	TYPE FR 88	TYPE FR 88	TYPE FR 88
TEMP RT 13	TYPE GO 52	TYPE GO 52	TYPE GO 52
TEMP BP 92	TYPE H2 95	TYPE H2 95	TYPE H2 95
TEMP CO 44	TYPE OR 3	TYPE OR 3	TYPE OR 3
TEOM BO 38	TYPE MO 7	TYPE MO 7	TYPE MO 7
TEOM BP 92	TYPE TO 7	TYPE TO 7	TYPE TO 7
TEON BO 38	TYPE BP 92	TYPE BP 92	TYPE BP 92
TEON BP 92	TYPE EF 94	TYPE EF 94	TYPE EF 94
TEO BP 92	TYPE UP 104	TYPE UP 104	TYPE UP 104
TFOTF IO 36	TYPE LE 19	TYPE LE 19	TYPE LE 19
TFOUT SO 75	TYPE T3 26	TYPE T3 26	TYPE T3 26
TFOUT BP 92	TYPE R3 30	TYPE R3 30	TYPE R3 30
TFZ DU 90	TYPE TM 32	TYPE TM 32	TYPE TM 32
TF FB 88	TYPE BP 92	TYPE BP 92	TYPE BP 92
TF F1 39	TYPE CT 80	TYPE CT 80	TYPE CT 80
TF H2 95	TYPE ES 98	TYPE ES 98	TYPE ES 98
TGOUT TG 1	TYPE E9 87	TYPE E9 87	TYPE E9 87
THEA BE 91	TYPE UP 104	TYPE UP 104	TYPE UP 104
THEA BF 99	TYPE CH 145	TYPE CH 145	TYPE CH 145
THEA BP 92	TYPE T3 26	TYPE T3 26	TYPE T3 26
THIT TG 1	TYPE CT 80	TYPE CT 80	TYPE CT 80
THRES SM 14	TYPE R3 30	TYPE R3 30	TYPE R3 30
TID DI 53	TYPE IO 36	TYPE IO 36	TYPE IO 36
TILTF BP 92	TYPE SO 75	TYPE SO 75	TYPE SO 75
TILTF FR 40	TYPE RT 13	TYPE RT 13	TYPE RT 13
TILTF H2 95	TYPE T3 26	TYPE T3 26	TYPE T3 26
TILTO FI 93	TYPE FI 93	TYPE FI 93	TYPE FI 93
TIME AT 9	TYPE BP 92	TYPE BP 92	TYPE BP 92
TIME BF 99	TYPE LE 19	TYPE LE 19	TYPE LE 19
TIME BO 38	TYPE FR 88	TYPE FR 88	TYPE FR 88
TIME CO 44	TYPE F1 39	TYPE F1 39	TYPE F1 39
TIME DI 42	TYPE H2 95	TYPE H2 95	TYPE H2 95
TIME DO 51	TYPE BP 92	TYPE BP 92	TYPE BP 92
TIME ES 98	TYPE TM 32	TYPE TM 32	TYPE TM 32
TIME E4 10	TYPE OR 3	TYPE OR 3	TYPE OR 3
TIME E8 55	TYPE OT 4	TYPE OT 4	TYPE OT 4
TIME F9 87	TYPE FI 93	TYPE FI 93	TYPE FI 93
TIME FR 88	TYPE FB 88	TYPE FB 88	TYPE FB 88
TIME FP 37	TYPE F3 41	TYPE F3 41	TYPE F3 41
TIME F1 39	TYPE H2 95	TYPE H2 95	TYPE H2 95
TIME F2 40	TYPE R3 30	TYPE R3 30	TYPE R3 30
TIME F3 41	TYPE RA 31	TYPE RA 31	TYPE RA 31
TIME F4 43	TYPE RE 91	TYPE RE 91	TYPE RE 91
TIME H1	TYPE BF 99	TYPE BF 99	TYPE BF 99

1-59

1-61

TIME	ATMOS	IN	DEPIND
	SOLORB		WOND
	SOLZEN		WONP
	ZTTOUT		WON1
TK	FILTER	1X	DEPIND
	PREDLOC		WOXC
	TRACK		WOXP
	TRACKIN		WOX1
	VERIFY		
TN	AMBN	2G	DEPIND
	DISCRIM		WOG1
	FFLD	2N	DEPIND
	SEARCH		WON1
	SININT	2X	DEPIND
	SININTM		WOX1
	TRACK	3G	DEPIND
	TRACKIN		PEDEP
	WBLO		WOHD
TO	TRACK		WOGD
TR	SEARCH		WOGP
	TRACK		WOG1
	TRACKIN	3N	DEPIND
	VERIFY		PEDEP
T1	TUMRLR		WOND
T3	TUMRLP		WONP
UP	BURST	3X	DEPIND
	UPDATE		PEDEP
WEDEPO	BLINE		WOXC
	CHXDEP	4G	WOXP
	CHXSPC		WOX1
	CONSPC		WOG1
	DERRIS	4N	WON1
	DEPO		
	DEPOME	4X	WOX1
	LEKSPC		
WRATE	CHMEDT		
	DHATE		
	OTHEP		
	OTNEQ		
	EQPAT		
	INITAL		
	SPECOP		
	SPECUG		
ZHCHEX	ATMOS		
	IONOSU		
	SPCMIN		
1G	DEPIND		
	WOGD		
	WOGP		
	WOG1		

Section 2

PROGRAM STRUCTURE NOTEBOOK

	<u>ITEM</u>	<u>PAGE</u>
2.1	SUBROUTINE LENGTH/EXTERNALS	2-1
2.2	LIST OF ROUTINES CALLING A SPECIFIC SUBROUTINE	2-71
2.3	LIST OF ROUTINES CONTAINING A SPECIFIC COMMON	2-85
2.4	LIST OF ROUTINES CALLED BY A SPECIFIC SUBROUTINE	2-93

PART 2.1 - SUBROUTINE LENGTH/EXTERNALS

```

1 ARSINC: 09/13/75
  PROGRAM LENGTH
  ARSTNC: 46
  EXTERNALS
  SORT: END
  ENTRY POINTS
  ARSINC:

2 ARSRR: 09/13/75
  PROGRAM LENGTH
  ARSRR: 41
  EXTERNALS
  RIFF: FBARS: DELARS: END
  ENTRY POINTS
  ARSRR:

3 ADVANCE 09/13/75
  PROGRAM LENGTH
  ADVANCE: 304
  EXTERNALS
  XAG: INOPL: DSLNTH: CREATE: DSPARD: XMT: NLOKDS: RETAG: RHOZ: MATMULT:
  MATPLP: ALLSTIC: DSTROY: END
  COMMON BLOCKS
  : 111 BASICOS: 5 CONCON: 12 CONCON2: 2
  ENTRY POINTS
  ADVANCE:

4 ALFARF 09/13/75
  PROGRAM LENGTH
  ALFARF: 733
  EXTERNALS
  PLOT: TAN: COS: SIN: MSHIFT: PLOT: END
  COMMON BLOCKS
  CALCOMP: 4
  ENTRY POINTS
  ALFARF:

5 ALNLI 09/13/75
  PROGRAM LENGTH
  ALNLI: 19
  EXTERNALS
  ALG: END
  ENTRY POINTS
  ALNLI:

6 AMBSNII 09/13/75
  PROGRAM LENGTH
  AMBSNII: 134
  EXTERNALS
  INOPL: EXP: NLOKDS: SIN: RAREX: SORT: END
  COMMON BLOCKS
  : 113 BASICOS: 5

```

```

ENTRY POINTS
AMRG:111111

7 AMPREF: 10/01/75
PROGRAM LENGTH
AMPREF:111 249
EXTERNALS
INWARD:111111 XMIT:111111 VECLIN:111111 SURVEC:111111 SEPA:111111 UNITV:111111 REFCO:111111 XRETA:111111 INDRD:111111 ALOG:111111
COS:111111 ELDENS:111111 COLLF:111111 ABSINC:111111 RBAREX:111111 NLOKOS:111111 END:111111
COMMON BLOCKS
111 202 BASICDS:111 5
ENTRY POINTS
AMPREF:111111

8 ANALYT: 09/13/75
PROGRAM LENGTH
ANALYT:111111 123
EXTERNALS
SORT:111111 EXP:111111 END:111111
ENTRY POINTS
ANALYT:111111

9 ASPECT: 09/13/75
PROGRAM LENGTH
ASPECT:111111 143
EXTERNALS
SCRIPT:111111 END:111111
COMMON BLOCKS
CONCON:111111 12 CONCON2:111111 2
ENTRY POINTS
ASPECT:111111

10 ATKGEN: 09/13/75
PROGRAM LENGTH
ATKGEN:111111 270
EXTERNALS
GATRY:111111 PLSTSET:111111 INDRD:111111 ATMOS:111111 MAGFIT:111111 MIXER:111111 GRIDON:111111 GRIDSET:111111 RITEA:111111 STOP:111111
NEXT:111111 CREATL:111111 DSPARD:111111 XMIT:111111 RAV:111111 LOCLAX:111111 VECSUM:111111 XWAG:111111 VECLIN:111111 INDRD:111111
GENADR:111111 PUTOPR:111111 NLOKOS:111111 END:111111
COMMON BLOCKS
111 111 BASICDS:111 5 CONCON:111111 12 CONCON2:111111 2
ENTRY POINTS
ATKGEN:111111

11 ATMOS: 09/13/75
PROGRAM LENGTH
ATMOS:111111 2143
EXTERNALS
EXP:111111 ACCOFR:111111 INDRD:111111 RBAREX:111111 ZTOUT:111111 JULIAN:111111 SOLCYC:111111 SOLORR:111111 SOLZEN:111111 SPCIN:111111
ALCOS:111111 FITTER:111111 SIN:111111 COS:111111 ALOG:111111 ALOG10:111111 SOLVE:111111 IONDSU:111111 END:111111
COMMON BLOCKS
111 111 BASICDS:111 5 ATMOP:111111 21 TIME:111111 8 ALTOON:111111 119 ZHCHEX:111111 1
ENTRY POINTS

```



```

ATMOSIIII
12 ATMOSG: 09/29/75
PROGRAM LENGTH
ATMOSG: 640
EXTERNALS
SQUASS: ATMOSIIII IONOS: SPCMIN: SORT: ECHRI: OUTPTC: END:
COMMON BLOCKS
BLANKC: 1985 CNSTN: 11 PRPREG: 5 PARAMS: 940 HEIGHT: 105 CELLS: 241 ATMOUN: 21
ENTRY POINTS
ATMOSG:

13 ATMOSH: 09/13/75
PROGRAM LENGTH
ATMOSH: 41
EXTERNALS
ATMOSH: END:
ENTRY POINTS
ATMOSH:

14 REDGE: 09/13/75
PROGRAM LENGTH
REDGE: 284
EXTERNALS
END:
COMMON BLOCKS
BLANKC: 1985 DEPDAT: 52 INTDAT: 59 CNSTN: 11 PRPREG: 5 TEMPI: 418
ENTRY POINTS
REDGE:

15 RETAG: 09/13/75
PROGRAM LENGTH
RETAG: 168
EXTERNALS
INWRL: ALTF: ACGER: TRPLATE: XMAG: SONIC: SIN: SORT: RNV: END:
COMMON BLOCKS
: 111 BASICDS: 5
ENTRY POINTS
RETAG:

16 RFIELD: 09/13/75
PROGRAM LENGTH
RFIELD: 215
EXTERNALS
INWRL: ETW2RAD: COS: SIN: SORT: ASIN: CROSS: NLOKOS: END:
COMMON BLOCKS
: 111 BASICDS: 5 CONCON: 12 CONCON2: 2 MAGLNK: 5
ENTRY POINTS
RFIELD:

17 BIAS: 09/13/75
PROGRAM LENGTH
BIAS: 105

```

```

EXTERNALS
INDVAL:111 SORT:11111 NLOKDS:111 END:111111
COMMON BLOCKS 12 CONCON2:11 2 111 113 HASICOS:11 5
CONCON:1111
ENTRY POINTS
RTAS:11111

18 RLINE:11 09/19/75
PROGRAM LENGTH
RLINE:1111 650
EXTERNALS
RADSET:111 CONJUG:1111 ETHORAD:111
PRAGE:1111 DEPO:111111 END:111111
COMMON BLOCKS
BLANKC:111 1985 BLANKC2:111 804 BLANKC3:111 6580 BLANKC4:111 5200 PARAMS:111 940 CNSTN:1111 11 EVENTX:111 41
PRAGE:111 5 MAGLNK:111 5 11J1K:111 8 WEDEPO:111 15 ENGOUT:111 5 PFLAG:111 1 PROPRTV:11 7
ENTRY POINTS
RLTNE:11111

19 ALKCHW:11 09/13/75
PROGRAM LENGTH
ALKCHW:1111 7
EXTERNALS
FNC:11111111
COMMON BLOCKS
CHW3:1111 198
ENTRY POINTS
BLKCHW:11111

20 ALLSTIC 09/13/75
PROGRAM LENGTH
ALLSTIC:11 277
EXTERNALS
XMT:11111 KUTTA:11111 XMA:11111 BETAGT:111 CROSS:11111 VECLIN:11111 RHOZ:11111 VECSUM:11111 ACQOER:11111 DOT:1111111
END:111111
COMMON BLOCKS
CONCON:111 12 CONCON2:11 2
ENTRY POINTS
ALLSTIC:111 GOTOALT:111 BLSTSET:111

21 BLOCKW:11 09/13/75
PROGRAM LENGTH
BLOCKW:1111 7
EXTERNALS
END:1111111
COMMON BLOCKS
DEPAT:111 52 CNSTN:1111 11
ENTRY POINTS
BLOCKW:11111

22 BORDER:11 09/13/75
PROGRAM LENGTH
BORDER:111 54

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RTUD:
26 BURST: 09/23/75
PROGRAM LENGTH
BURST: 789
EXTERNALS
QNTV: INDRL: RITEZ: DEPTD: XMG: MIXER: CREAT: LSLNTH: DSPWRD: XMT:
RFLD: PTNEW: PUTROT: MODEL: ATWOS: RBAREX: DUSTIN: CREATE: PEDEP: NEXT:
INDMD: REMOVE: DSTROY: PUTTOP: NLOKDS: END:
COMMON BLOCKS
: 202 BASICDS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
BURST:
29 CHEMD: 10/04/75
PROGRAM LENGTH
CHEMD: 484
EXTERNALS
LSLNTH: CREAT: HYPO: XMG: ATWOS: DRATE: SPCMIN: FORAT: TONOSU: DEDEP:
CHEMT: MIXER: NEXT: DSPWRD: INITAL: PHOTOR: SPECOP: RITEF: DTNEP: RBAREX:
SPECOP: DTNEQ: WIPOUT: DSTROY: END:
COMMON BLOCKS
: 131 BASICDS: 5 CONCON: 12 CONCON2: 2 ATMOUP: 21 TONOU: 4 ATMOST:
ENTRY POINTS
CHEMD:
30 CHEMT: 09/13/75
PROGRAM LENGTH
CHEMT: 1032
EXTERNALS
EXP: RITEZ: SORT: TEX: RBAREX: ALOG: RATE: CHMION: END:
COMMON BLOCKS
: 36 CHEMAN: 25 CNSTN: 11
ENTRY POINTS
CHEMT:
31 CHEMG: 09/13/75
PROGRAM LENGTH
CHEMG: 374
EXTERNALS
SECON: ECRD: OUTPTC: CHEMT: ECR: END:
COMMON BLOCKS
BLANK: 1985 BLANK2: 804 CNSTN: 11 ENERGY: 103 HEIGHT: 105 LINK: 2 PREP:
ENTRY POINTS
CHEMG:
32 CHEMD: 09/13/75
PROGRAM LENGTH
CHEMD: 2128
EXTERNALS
RITEF: XMG: ALOG: EXP: RATE: SORT: EQLAIR: EQLMT: ATMOS: SPCMIN:
RBAREX: PHOTOR: END:
COMMON BLOCKS

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111 BASICOS: 5 CHEM8: 17 CONCON1: 12 CONCON2: 2 FDSRAT: 9 SPEC: 56
ENTRY POINTS
CHEM8:
33 CHEM2: 09/13/75
PROGRAM LENGTH
CHEM2: 231
EXTERNALS
SORT: RATE: END:
COMMON BLOCKS
SPEC: 12
ENTRY POINTS
CHEM2:
34 CHEM2: 10/01/75
PROGRAM LENGTH
CHEM2: 530
EXTERNALS
RAPEX: SORT: LSUNTH: RITE: NEXT: DSPWR: INDR: CREAT: XWAG: SURVE:
PASS: PEDEP: RITE: INDR: PHOTO: EXP: RITE: PUTROT: DSTROY: END:
COMMON BLOCKS
202 BASICOS: 5 ATMOST: 15 WRATE: 159 CONCON1: 12 CONCON2: 2
ENTRY POINTS
CHEM2:
35 CHM10: 09/13/75
PROGRAM LENGTH
CHM10: 850
EXTERNALS
EXP: ANLYT2: RICAT: SORT: END:
COMMON BLOCKS
36 CHEM2: 25
SPEC:
ENTRY POINTS
CHM10:
36 CHOLSKI 09/13/75
PROGRAM LENGTH
CHOLSKI: 198
EXTERNALS
SORT: END:
ENTRY POINTS
CHOLSKI:
37 CHXDEP: 09/13/75
PROGRAM LENGTH
CHXDEP: 151
EXTERNALS
SORT: ALOG: FZET: END:
COMMON BLOCKS
1985 BLANKC2: 804 BLANKC3: 6580 BLANKC4: 5200 WEDEP: 15 CHEXEG: 4
ENTRY POINTS
CHXDEP:

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43 COLLF: 09/13/75
PROGRAM LENGTH
COLLF: 52
EXTERNALS
ALOG: SORT: END:
ENTRY POINTS
COLLF:

44 COMP2: 09/13/75
PROGRAM LENGTH
COMP2: 69
EXTERNALS
ACGOER: END:
ENTRY POINTS
COMP2:

45 COMP3: 09/13/75
PROGRAM LENGTH
COMP3: 247
EXTERNALS
COMP2: SORT: ATAN: PAUSE: ACGOER: END:
ENTRY POINTS
COMP3:

46 CONJUG: 09/13/75
PROGRAM LENGTH
CONJUG: 247
EXTERNALS
INDWR: ETHRAD: COS: SIN: SORT: ASIN: RAD2ETH: ALOG: NLOKS: END:
COMMON BLOCKS
111 111 BASICDS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
CONJUG:

47 CONSET: 09/13/75
PROGRAM LENGTH
CONSET: 309
EXTERNALS
END:
COMMON BLOCKS
COARH: 50
ENTRY POINTS
CONSET:

48 CONSPC: 09/13/75
PROGRAM LENGTH
CONSPC: 76
EXTERNALS
SORT: RR4REX: END:
COMMON BLOCKS
BLANKC1: 1985 BLANKC2: 804 BLANKC3: 6580 BLANKC4: 5200 WEDEPO: 15
ENTRY POINTS
CONSPC:

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49 CORTAN 09/13/75
PROGRAM LENGTH
CORTAN: 64
EXTERNALS
STOP: XMIT: STREPI: END:
COMMON BLOCKS
CONCON: 12 CONCON2: 2
ENTRY POINTS
CORTAN:

50 DEBRI 09/13/75
PROGRAM LENGTH
DEBRI: 80
EXTERNALS
HOPART: CONSPC: BLIN: LEKSPC: CHXSPC: END:
COMMON BLOCKS
BLANKC: 1985 BLANKC2: 804 BLANKC3: 6580 BLANKC4: 5200 PRPREG: 5
GAGET: 4 EVENTA: 41 WEDEPO: 15 ENGOUT: 5 CONION: 5
ENTRY POINTS
DEBRI:

51 DEDEP 10/01/75
PROGRAM LENGTH
DEDEP: 1132
EXTERNALS
XMA: NEXT: INWD: DEPD: SURVEC: SEPA: LOCLAX: VECLIN: RTTE: DSPWRD:
PMAS: WOD: RIVEZ: QINT: RTEI: RFIELD: SIN: WORD: ATMOS: PHASS:
E2: CONJUG: COS: PROJ: SORT: RBAREX: EXP: ACOS: EI: WOND:
END:
COMMON BLOCKS
BASICDS: 202 BASICDS2: 5 CONCON: 5 CONCON2: 2 N13NXG: 6
ENTRY POINTS
DEDEP:

52 DELAR 09/26/75
PROGRAM LENGTH
DELAR: 326
EXTERNALS
INWD: XMIT: XMA: COS: SIN: NEXT: MIXER: HTOS: VECLIN: ELDENS:
COLF: ABSINC: END:
COMMON BLOCKS
BASICDS: 113 BASICDS2: 5 CONCON: 5 CONCON2: 2
ENTRY POINTS
DELAR:

53 DELTI 09/13/75
PROGRAM LENGTH
DELTIM: 96
EXTERNALS
SORT: END:
COMMON BLOCKS
CNSTN: 11 LINK: 2 HEIGHT: 105 CELLS: 241
CNSTN1:

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ENTRY POINTS
DELTIM:1111

54 DEPIND 09/13/75
PROGRAM LENGTH
DEPIND:111 77
EXTERNALS
INDWR:1111 DSPWRD:1111 WOX:11111111 WOL:11111111 WOG:11111111 END:11111111
COMMON BLOCKS 134 BASICDS:111 5 N13XAG:1111 6
ENTRY POINTS
DEPIND:1111

55 DEPO:111 09/19/75
PROGRAM LENGTH
DEPO:1111111 241
EXTERNALS
SORT:11111111 ALOG:11111111 FZET:11111111 RAD2ETH:1111 CONJUG:1111 ETH2RAD:1111 END:11111111
COMMON BLOCKS
BLANKC:1111 1985 BLANKC2:111 804 BLANKC3:111 6580 BLANKC4:111 5200 CNSTN1:1111 11 11J1K1:1111 8 WEDEPO:1111 15
ENTRY POINTS
DEPO:11111111

56 DEPOWE:1 09/13/75
PROGRAM LENGTH
DEPOWE:1111 7
EXTERNALS
END:11111111
COMMON BLOCKS
WEDEPO:1111 15
ENTRY POINTS
DEPOWE:11111111

57 DISCRIM 09/13/75
PROGRAM LENGTH
DISCRIM:111 353
EXTERNALS
GRNTRY:1111 INDWR:1111 RITEZ:11111111 CREATL:1111 DSPWRD:1111 PLTRFM:1111 INDWRD:1111 NLOKDS:1111 PREDLOC:1111 SURVEC:1111
DSLNTH:1111 DOT:11111111 XMT:11111111 INTRP:11111111 NEXT:11111111 STOP:11111111 WHERE:11111111 COS:11111111 ALT:11111111
CREATE:1111 PUTTOP:11111111 XMA:11111111 END:11111111
COMMON BLOCKS 115 BASICDS:111 5 CONCON:1111 12 CONCON2:111 2
ENTRY POINTS
DISCRIM:1111

58 DISPERS 09/13/75
PROGRAM LENGTH
DISPERS:111 68
EXTERNALS
SQRT:11111111 END:11111111
ENTRY POINTS
DISPERS:1111

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59  DATE: 09/13/75
    PROGRAM LENGTH
    DATE: 656
    EXTERNALS
    RATE: SORT: RBAREX: EXP: END:
    COMMON BLOCKS
    WRATE: 159
    ENTRY POINTS
    DATE:

60  DOPR2: 09/13/75
    PROGRAM LENGTH
    DOPR2: 435
    EXTERNALS
    XUG: XMT: LOCAX: CROSS: SITE: NSOLVE: STOP: SIN:
    COS: VECLIN: ORP: GOTOALT: SUBVEC: DOT: ACQER: SEPA: END:
    COMMON BLOCKS
    CONCON: 12 CONCON2: 2
    ENTRY POINTS
    DOPR2: ORBFX:

61  DTNEP: 09/13/75
    PROGRAM LENGTH
    DTNEP: 1021
    EXTERNALS
    EXP: SORT: ALOG: RBAREX: END:
    COMMON BLOCKS
    ATMOST: 15 WRATE: 159 FDSRAT: 9 DISION: 19
    ENTRY POINTS
    DTNEP:

62  DTNEQ: 09/15/75
    PROGRAM LENGTH
    DTNEQ: 1211
    EXTERNALS
    SORT: END:
    COMMON BLOCKS
    ATMOST: 15 WRATE: 159 FDSRAT: 9 DISION: 19
    ENTRY POINTS
    DTNEQ:

63  DUSCAT: 09/13/75
    PROGRAM LENGTH
    DUSCAT: 151
    EXTERNALS
    INDR: RITEZ: MIXER: NEXT: ALOG: NLOKDS: END:
    COMMON BLOCKS
    CONCON: 12 CONCON2: 2 130 BASICDS: 5
    ENTRY POINTS
    DUSCAT:

64  DUSTIN: 09/13/75
    PROGRAM LENGTH

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DUSTIN: 164
EXTERNALS
INDWR: 164
COMMON BLOCKS
111 130 BASICS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
DUSTIN: 164

65 DUSTUP: 09/23/75
PROGRAM LENGTH
DUSTUP: 178
EXTERNALS
INDWR: 178
COMMON BLOCKS
202 BASICS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
DUSTUP: 178

66 DYNPLOT: 09/13/75
PROGRAM LENGTH
DYNPLOT: 278
EXTERNALS
PLOTS: 111 PTORCH: 111 ALFABET: 111 MCHARCT: 111 NEXT: 111 VECLIN: 111 NLOKDS: 111 END: 111
COMMON BLOCKS
111 91 BASCON: 24 PLTONT: 1
ENTRY POINTS
DYNPLOT: 111

67 ECRD: 09/13/75
PROGRAM LENGTH
ECRD: 45
EXTERNALS
RDRUM: 111 WDRUM: 111 10CHEK: 111 ENDOOC: 111 END: 111
ENTRY POINTS
ECRD: 111 ECWR: 111

68 EDGE: 09/13/75
PROGRAM LENGTH
EDGE: 80
EXTERNALS
END: 111
ENTRY POINTS
EDGE: 111

69 ETHRAD: 09/13/75
PROGRAM LENGTH
ETHRAD: 98
EXTERNALS
SCRT: 111 ACOS: 111 ATAN2: 111 COS: 111 SIN: 111 END: 111
COMMON BLOCKS
111 12 CONCON2: 2
ENTRY POINTS
ETHRAD: 111 RAD2ETH: 111

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70 EULFIT 09/13/75
PROGRAM LENGTH
EULFIT: 226
EXTERNALS
ALOG: WOXC: END:
COMMON BLOCKS 4
GAGRETI:
ENTRY POINTS
EULFIT:

71 ELDENSI 10/01/75
PROGRAM LENGTH
ELDENSI: 935
EXTERNALS
XMRG: ATMOS: IONOS: MIXER: INDR: NEXT: DSPWRD: GINIT: SURVEC: SEPA:
LOCLAX: VECLIN: EXTFB: RITEF: XBETAI: EXP: DEDEP: RITEAI: CHEMHR:
INDMR: CHEMD: HPETCH: CHEMQ: ENDI:
COMMON BLOCKS
202 BASICDS: 5 SPECQ: 12 CHEMB: 17 CONCON: 12 CONCON2: 2 ATMOUP: 21
ENTRY POINTS
ELDENSI:

72 ENECHKI 09/13/75
PROGRAM LENGTH
ENECHKI: 127
EXTERNALS
END:
COMMON BLOCKS
11 HEIGHT: 105 CELLS: 241 ENERGY: 103
ENTRY POINTS
ENECHKI:

73 EQLAIP 09/13/75
PROGRAM LENGTH
EQLAIP: 140
EXTERNALS
SGRT: ENDI:
COMMON BLOCKS
SPEC: 56
ENTRY POINTS
EQLAIP:

74 EQLMTLI 09/13/75
PROGRAM LENGTH
EQLMTLI: 109
EXTERNALS
SGRT: ENDI:
COMMON BLOCKS
SPEC: 56
ENTRY POINTS
EQLMTLI:

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75 EGRAT11 09/13/75
   PROGRAM LENGTH
   EQRT1111 116
   EXTERNALS
   END111111
   COMMON BLOCKS
   ATOSN1111 6  ATOST1111 15  WRATE1111 159
   ENTRY POINTS
   EGRAT1111

76 EVPROCT1 09/30/75
   PROGRAM LENGTH
   EVPROCT111 184
   EXTERNALS
   QNTHY1111 INDWPL1111 LOCKS1111
   NLOKAL1111 REMOVE1111 SECOND1111
   COMMON BLOCKS
   111 111 BASICOS111 5  BLANKC2111 5
   111 111 CELLS1111 241 REZONN1111
   HEIGHT1111 105
   ENTRY POINTS
   EVPROCT111

77 EXPINT1 09/13/75
   PROGRAM LENGTH
   EXPINT1111 215
   EXTERNALS
   ALG111111 EXP111111 ACQOER1111 COS111111 SIN111111 ENO111111
   ENTRY POINTS
   EXPINT1111 EL111111 GOFX111111 FOPX111111 CI111111 SI111111

78 EXTENT1 09/30/75
   PROGRAM LENGTH
   EXTENT1111 853
   EXTERNALS
   XNAG111111 ELFI111111 COS111111 SIN111111
   NLOKOS1111 SORT111111 MTOS111111
   COMMON BLOCKS
   111 130 BASICOS111 5  CONCON1111 5  CONCON2111 2
   ENTRY POINTS
   EXTENT1111

79 EXTX111 09/30/75
   PROGRAM LENGTH
   EXTX111111 198
   EXTERNALS
   EXTENT1111 INDWRO1111 UNITV1111 VECLIN1111 GINIT1111 ENO111111
   COMMON BLOCKS
   111 130 BASICOS111 5
   ENTRY POINTS
   EXTX111111

80 EYES111 09/13/75
   PROGRAM LENGTH

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NEXT111111 PUTORA1111 WIPOUT1111
END111111
11  PRPREG1111 5  PARAMS1111 940
427 MAGLNK1111 5  FACTRO1111 2
222 MGRID1111 3352 MGRID1111
804 EVENTX1111 41  CNSTN1111

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INDWRD1111 SUBVEC1111 INDWPL1111
DOT111111
UNITV1111 CROSS1111

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EXTERNALS
  GENTRY:!!! INTRP:!!! NEXT:!!! CREATE:!!! MIXER:!!! DSPWRD:!!!
  PLTK:K:!!! LOCAX:!!! VECLIN:!!! XMAG:!!! END:!!! PREV:!!!
  MCHAR:!!! PLHEAV:!!! PLSTR:!!! PUTOR:!!!
COMMON BLOCKS 202 BASICDS:!!! 5 CONCON:!!! 12 CONCON2:!!! 2
ENTRY POINTS
  FROUT:!!!
86 FFLD:!!! 09/13/75
PROGRAM LENGTH
  FFLD:!!! 426
EXTERNALS
  GENTRY:!!! INWR:!!! RITEZ:!!! XMT:!!! XNAG:!!! ABSORB:!!! RBAREX:!!! COS:!!!
  RAN:!!! ALOG:!!! SORT:!!! ASIN:!!! CREATE:!!! INDR:!!! PUTOR:!!! NLOKDS:!!!
  END:!!!
COMMON BLOCKS
  115 BASICDS:!!! 5 CONCON:!!! 12 CONCON2:!!! 2
ENTRY POINTS
  FFLD:!!!
87 FILTER: 09/13/75
PROGRAM LENGTH
  FILTER:!!! 354
EXTERNALS
  AGOER:!!! INWR:!!! GREAT:!!! DSPWRD:!!! XMT:!!! BORDER:!!! NLOKDS:!!! RITEF:!!! ADVANCE:!!! 'COBIAN:!!!
  MATDAG:!!! KALMAN:!!! END:!!!
COMMON BLOCKS
  113 BASICDS:!!! 5
ENTRY POINTS
  FILTER:!!!
88 FILTER: 09/13/75
PROGRAM LENGTH
  FILTER:!!! 538
EXTERNALS
  AGOER:!!! ALOG:!!! SOLVE:!!! END:!!!
ENTRY POINTS
  FILTER:!!!
89 FRCVOL: 09/13/75
PROGRAM LENGTH
  FRCVOL:!!! 65
EXTERNALS
  END:!!!
ENTRY POINTS
  FRCVOL:!!!
90 FUZINCI 09/13/75
PROGRAM LENGTH
  FUZINCI:!!! 521
EXTERNALS
  INWR:!!! SIN:!!! XMT:!!! TAYLOR:!!! SORT:!!! END:!!!

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GRADNE!!!! 48
EXTERNALS
ELDSN!!!! VECLN!!!! ENDD!!!!
ENTRY POINTS
GRADNE!!!!

97 GRDSET: 09/18/75
PROGRAM LENGTH
GRDSET!!!! 465
EXTERNALS
INDWRL!!!! ATMOS!!!! IONOSU!!!! SPCWNI!!!! OUTPTC!!!! EXIT!!!! COS!!!! SIN!!!! UNITV!!!! CROSI!!!!
GRVCE!!!! BFIELO!!!! VECLN!!!! XMT!!!! XMAI!!!! SUBVEC!!!! DOT!!!! BSTANG!!!! SORT!!!! END!!!!
COMMON BLOCKS
!!! 129 BASICDS!!!! 5 REZONN!!!! 222 CNSTN!!!! 11 PRPREG!!!! 5 PARAMS!!!! 540 HGRIDI!!!! 3352
ENTRY POINTS
GRDSET!!!!

98 GRIDOK: 09/13/75
PROGRAM LENGTH
GRIDOK!!!! 573
EXTERNALS
INDWRL!!!! ETH2RAD!!!! RAD2ETH!!!! XMT!!!! BFIELO!!!! COS!!!! SORT!!!! SIN!!!! ASIN!!!! ACOS!!!!
GRVCE!!!! ATMOS!!!! ENECHK!!!! ECR!!!! END!!!!
COMMON BLOCKS
!!! 129 BASICDS!!!! 5 BLANKC!!!! 1985 CNSTN!!!! 11 PRPREG!!!! 5 PARAMS!!!! 940 HEIGHT!!!! 165
ENTRY POINTS
GRIDOK!!!!

99 GRIDUP: 09/13/75
PROGRAM LENGTH
GRIDUP!!!! 26
EXTERNALS
INDWRL!!!! ENDD!!!!
COMMON BLOCKS
!!! 129 BASICDS!!!! 5 HGRIDI!!!! 3352 HGRIDI!!!! 427
ENTRY POINTS
GRIDUP!!!!

100 GRVCE: 09/13/75
PROGRAM LENGTH
GRVCE!!!! 88
EXTERNALS
COS!!!! SIN!!!! SORT!!!! ENDD!!!!
COMMON BLOCKS
HGRIDI!!!! 3352
ENTRY POINTS
GRVCE!!!!

101 HOPART: 09/13/75
PROGRAM LENGTH
HOPART!!!! 68
EXTERNALS
LOSCON!!!! IONLEK!!!! CHXLOS!!!! ENDD!!!!

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COMMON BLOCKS
CASTN1111 11 CONION111 8 GADGET111 4
ENTRY POINTS
MDPART1111

102 MFETCH1 09/13/75
PROGRAM LENGTH
MFETCH1111 1999
EXTERNALS
XNAG11111 STATUS1111 DOT111111 ATAN111111 OUTPTC1111 STOP111111 ACQOER1111 XMT111111 INDRM1111 IOCHEK1111
ALOG11111 ALNLINE1111 EXP111111 SIN111111 COS111111 STR1PR1111 ATMOS111111 IONOSU1111 SPCM111111 END111111
COMMON BLOCKS
MGRID1111 3352 MGRID1111 427 ATHOUR1111 21
ENTRY POINTS
MFETCH1111

103 HIBUR11 09/23/75
PROGRAM LENGTH
HIBUR1111 231
EXTERNALS
OBATHY1111 ECRD111111 INDR111111 DEPEND1111 NLOKDS1111 LSLNTH1111 HYDROG1111 CHENG1111 GRIDUP1111 REZONE1111
CREATE1111 PUTTOP1111 MOVFB1111 MOVFB2111 PUTBOT1111 NEXT111111 INWRD1111 XMT111111 ECR111111 END111111
COMMON BLOCKS
111 202 BASICDS111 5 BLANKC111 1995 BLANKC211 804 PRPREG111 5
ENTRY POINTS
HIBUR1111

104 MPCHEW1 09/13/75
PROGRAM LENGTH
MPCHEW111 475
EXTERNALS
END111111
COMMON BLOCKS
BLANKC111 1995 BLANKC211 804 BLANKC311 6580 BLANKC411 5200 CONION111 8
ENTRY POINTS
MPCHEW111

105 HTOS111 09/13/75
PROGRAM LENGTH
HTOS1111 38
EXTERNALS
SORT111111 END111111
COMMON BLOCKS
CONCON111 12 CONCON211 2
ENTRY POINTS
HTOS1111

106 HYDMRG1 09/18/75
PROGRAM LENGTH
HYDMRG111 1485
EXTERNALS
INDWR1111 SURVEG1111 LOCLAX1111 XNAG111111 ACOS111111 OUTPTC1111 SEPA111111 COS111111 SIN111111 SORT111111 CREATL1111 DSPWRD1111
PUTBOT1111 LSLNTH1111 NEXT111111 ACOS111111 ACOS111111 OUTPTC1111 VECLIN1111 XMT111111 VFUNC2111 DOT111111 ATAN211111

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ALOG:||||| RBARE:|||| INDRD:|||| MIXER:|||| END:|||||
COMMON BLOCKS
||| 202 BASICDS:|||| 5 CONCON:|||| 12 CONCON2:|||| 2 PARAM:|||| 3 CONNB:|||| 50
ENTRY POINTS
HYDRG:|||||

107 HYDRG: 10/04/75
PROGRAM LENGTH
HYDRG:||||| 619
EXTERNALS
LSLNTM:|||| CREATL:|||| NEXT:|||| INDRD:|||| XMT:|||| SUBVEC:|||| XMG:|||| DOT:|||| SORT:|||| PUTBOT:||||
DEPRD:|||| INDRD:|||| DSTROY:|||| PREVI:|||| REMOVP:|||| MIXER:|||| ACGRER:|||| VECLIN:|||| SYZGV:|||| CIPHER:||||
LOCLAT:|||| MATMULT:|||| VECSUM:|||| EXP:|||| SCHCK:|||| END:|||||
COMMON BLOCKS
||| 202 BASICDS:|||| 5 GEOND:|||| 7 CONCON2:|||| 2
ENTRY POINTS
HYDRG:|||||

108 HYDRG: 09/13/75
PROGRAM LENGTH
HYDRG:||||| 317
EXTERNALS
MIXER:|||| NEXT:|||| SECOND:|||| ECRD:|||| HYDRG:|||| ECHR:|||| OUTPTC:|||| TIMVAR:|||| END:|||||
COMMON BLOCKS
||| 130 BASICDS:|||| 5 BLANKC:|||| 1985 BLANKC2:|||| 804 CNSTN:|||| 11 EVENTX:|||| 41 PRPREG:|||| 5
PAPAMS:|||| 940 ENERGY:|||| 103 HEIGHT:|||| 105 CELLS:|||| 241 REZONN:|||| 222
ENTRY POINTS
HYDRG:|||||

109 HYDRG: 09/13/75
PROGRAM LENGTH
HYDRG:||||| 235
EXTERNALS
DELTIM:|||| SORT:|||| ENECHK:|||| END:|||||
COMMON BLOCKS
CNSTN:|||| 11 HEIGHT:|||| 105 CELLS:|||| 241 LINK:|||| 2
ENTRY POINTS
HYDRG:|||||

110 IGRAND: 09/13/75
PROGRAM LENGTH
IGRAND:||||| 133
EXTERNALS
XMG:|||| HFETCH:|||| UNITV:|||| LSLNTM:|||| NEXT:|||| INDRD:|||| WIND:|||| DOT:|||| END:|||||
COMMON BLOCKS 202 BASICDS:|||| 5 MGRID:|||| 3352 MGRID:|||| 427
ENTRY POINTS
IGRAND:|||||

111 INDEX: 09/13/75
PROGRAM LENGTH
INDEX:||||| 384
EXTERNALS

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GEOQAIIII OUTPTCIIII ENDIIIIII
COMMON BLOCKS
BLANKCIIII 1985 BLANKC2IIII 804 CNSTNIIII 11 PRPREGIIII 5 PARAMSIIII 940 PRFLAGIIII 1
ENTRY POINTS
INDEXIIII

112 INDRMII 09/13/75
PROGRAM LENGTH
INORMIIII 142
EXTERNALS
IOCHEKIIII RDRUMIIII ENDIIIIII
COMMON BLOCKS
MGRIDIIII 3352
ENTRY POINTS
INDRMIIII

113 INITIAL 09/15/75
PROGRAM LENGTH
INITALIIII 349
EXTERNALS
ELIIIIII EXPIIIIII CRATEIIII ENDIIIIII
COMMON BLOCKS
ATWOSTIIII 15 WRATEIIII 159
ENTRY POINTS
INITALIIII

114 INSIDE 09/13/75
PROGRAM LENGTH
INSIDEIIII 45
EXTERNALS
AMAGIIII DOTIIIIII ENDIIIIII
COMMON BLOCKS
MGRIDIIII 3352 MGRIDIIII 427
ENTRY POINTS
INSIDEIIII

115 INTRPI 10/01/75
PROGRAM LENGTH
INTRPIIIII 666
EXTERNALS
INOWRLIIII MIXERIIII NEXTIIII ALOSIIII EXPIIIIII SUBVECIIII VECLINIIII XMTYIIII UNITVIIII RITEZIIII
CSPWROIIII DUSTUPIII DUSCATIIII INOWROIIII BTUPDIIII NLOKDSIIII POINTSIIII CREATEIIII SEPAIIII XNAGIIII
ENDIIIIII
COMMON BLOCKS
IIII 130 BASICDSIIII 5 CONCONIIII 12 CONCON2IIII 2
ENTRY POINTS
INTRPIIIII

116 INVTYI 09/13/75
PROGRAM LENGTH
INVTYIIII 172
EXTERNALS
ACGOERIIII INOWRLIIII INOWROIIII XMTYIIII NLOKDSIIII ENDIIIIII

```

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COMMON BLOCKS
117 130 BASIC0S111 5
ENTRY POINTS
INTRY1111

117 IONLEK1 09/13/75
PROGRAM LENGTH
IONLEK1111 131
EXTERNALS
RBAREX1111 END11111111
ENTRY POINTS
IONLEK1111

119 IONOSU1 09/13/75
PROGRAM LENGTH
IONOSU1111 472
EXTERNALS
ACGOER1111 ALOG101111 EXP11111111 RATE11111111 SORT11111111 ATMOS11111111 RBAREX1111 SIN11111111 END11111111
COMMON BLOCKS 21 IONOUPI1111 4 ALTODN1111 119 ZMCHEX1111 1
ATMOUP1111
ENTRY POINTS
IONOSU1111

119 JCOBIAN 09/13/75
PROGRAM LENGTH
JCOBIAN111 105
EXTERNALS
XMTT11111111 END11111111
ENTRY POINTS
JCOBIAN111

120 JULIAN1 09/13/75
PROGRAM LENGTH
JULIAN1111 72
EXTERNALS
END11111111
ENTRY POINTS
JULIAN1111

121 KALMAN1 09/13/75
PROGRAM LENGTH
KALMAN1111 511
EXTERNALS
MATRANS1111 MATMULT1111 MATADD1111 CHOLSKI1111 RITEF11111111 MATSUB1111 END11111111
ENTRY POINTS
KALMAN1111

122 KUTTA11 09/13/75
PROGRAM LENGTH
KUTTA1111 168
EXTERNALS
XMTT11111111 ACGOER1111 END11111111
ENTRY POINTS

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KUTTAIIII
 123 LAUNCH 09/13/75
 PROGRAM LENGTH
 LAUNCH: 226
 EXTERNALS
 GENTRY: INDR: CREAT: INDR: XMT: ORP: STREP: OUTPTS: DSPWRD: PUTBOT:
 CREATE: PUTOR: NEXT: NLOK: END:
 COMMON BLOCKS
 CONCON: 12 CONCON2: 2 111 115 BASICOS: 5
 ENTRY POINTS
 LAUNCH:

124 LEKSPC: 09/13/75
 PROGRAM LENGTH
 LEKSPC: 68
 EXTERNALS
 SORT: END:
 COMMON BLOCKS
 BLANKC: 1985 BLANKC2: 804 BLANKC3: 6580 BLANKC4: 5200 WEDEPO: 15
 ENTRY POINTS
 LEKSPC:

125 LIMITS: 09/13/75
 PROGRAM LENGTH
 LIMITS: 147
 EXTERNALS
 DOT: SORT: INSIDE: END:
 COMMON BLOCKS
 MGRID: 3352 MGRID: 427
 ENTRY POINTS
 LIMITS:

126 LOSCON: 09/13/75
 PROGRAM LENGTH
 LOSCON: 243
 EXTERNALS
 RREP: ALOG: SORT: END:
 ENTRY POINTS
 LOSCON:

127 MAGFIT: 09/13/75
 PROGRAM LENGTH
 MAGFIT: 231
 EXTERNALS
 INDR: LOCKS: SIN: COS: ONENG: SORT: ATANI: ASINI: CREAT: DSPWRD:
 NLOK: END:
 COMMON BLOCKS
 111 BASICOS: 5 CONCON: 12 CONCON2: 2 MAGLNK: 5
 ENTRY POINTS
 MAGFIT:

128 MCHARCT 09/13/75

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PROGRAM LENGTH 60
MCHACT:
EXTERNALS
MCHART: END:
ENTRY POINTS
MCHACT:

129 MEASERR 09/13/75
PROGRAM LENGTH
MEASERR: 163
EXTERNALS
INDWR: SORT: RNW: NLOKDS: RITEF: END:
COMMON BLOCKS
: 113 BASICDS: 5
ENTRY POINTS
MEASERR:

130 MLTPATH 09/13/75
PROGRAM LENGTH
MLTPATH: 234
EXTERNALS
INDWR: PREV: NEXT: MIXER: SURVEC: XWAG: INDWR: DSPWRD: RADTRAN: ROUNC:
GOAT: CREATE: XMIT: SORT: PUTOR: DESTROY: NLOKDS: END:
COMMON BLOCKS
: 130 BASICDS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
MLTPATH:

131 MLTSPLT 09/13/75
PROGRAM LENGTH
MLTSPLT: 235
EXTERNALS
INDWR: NEXT: NLOKDS: SORT: AMBN: QINW: END:
COMMON BLOCKS
: 113 BASICDS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
MLTSPLT:

132 MNOPLS 09/13/75
PROGRAM LENGTH
MNOPLS: 381
EXTERNALS
INDWR: NEXT: RANF: COS: SIN: NLOKDS: TAN: AMBN: SORT: ATAN2:
END:
COMMON BLOCKS
: 113 BASICDS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
MNOPLS:

133 MNOPLSM 09/13/75
PROGRAM LENGTH
MNOPLSM: 346
EXTERNALS

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INDMPL: NEXT: NLOKDS: RANF: COS: SIN: SORT: TAN: AMBGN: ATAN2:
END:
COMMON BLOCKS
  113 BASICDS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
  MNOPLS:

134 MNOPLS: 09/13/75
PROGRAM LENGTH
  MNOPLS: 119
EXTERNALS
  INDMPL: INDMPL: SIN: COS: ATAN2: NLOKDS: END:
COMMON BLOCKS
  113 BASICDS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
  MNOPLS:

135 MODEL: 09/27/75
PROGRAM LENGTH
  MODEL: 1076
EXTERNALS
  CONSET: PREV: DSPNRD: MODEL: INDMPL: PUTROT: NEXT: MIXER: HYDMRG:
  INDMPL: REMOVE: XMTI: MODLON: RACOUT: SUBVEC: XWAG: SEPA: SIN:
  SORT: RADMRG: OFFSET: WIPUT: INDMPL: ENDFIL: BACKSP: SUB12: SUB13: SUB2:
  SUB14: VECLIN: ACQER: END:
COMMON BLOCKS
  202 BASICDS: 5 CONCON: 50 CONCON2: 12 CONCON2: 2 PARAM: 3
ENTRY POINTS
  MODEL:

136 MODEL: 09/19/75
PROGRAM LENGTH
  MODEL: 2097
EXTERNALS
  INDMPL: OUTPTC: ASIN: RBAREX: SORT: ACQER: TAN: COS: SUB2:
  VFUNC: EXP: XMTI: MODLON: LOCLAX: CREATE: PUTROT: LOCKDS: NEXT: SURVEC: XWAG:
  VECLIN: UNITV: MATMULT: REMOVE: DSTROY: ELF: AZF: SIN: RITEF: SUB3:
  NEXTNL: ACOS: ATMOS: SUB9: NLOKDS: END:
COMMON BLOCKS
  202 BASICDS: 5 CONCON: 12 CONCON2: 2 FORPAR: 25 PARAM: 3 CONNB: 50
ENTRY POINTS
  MODEL:

137 MODLON: 09/19/75
PROGRAM LENGTH
  MODLON: 2146
EXTERNALS
  INDMPL: ATMOS: SEPA: SIN: XWAG: RBAREX: OUTPTC: WOX: ALOG: SORT:
  EXP: VFUNC2: ASIN: RBAREX: ALOG10: INDMPL: ACQER: END:
COMMON BLOCKS
  3 CONCON: 12 CONCON2: 2 CONNB: 50 202 BASICDS: 5
ENTRY POINTS
  MODLON:

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138 MOVFBI 09/26/75
PROGRAM LENGTH
MOVFI1111 1368
EXTERNALS
ALOG11111 EXP111111 RBAREX1111 OUTPTC1111 INOWRL1111 PROPTY1111 SIN111111 RITEF11111 WOXCI11111 INDEX11111
SORT11111 TIMVAR1111 RBAIX1111 ASIN111111 RADOUT1111 XMIT111111 NLOKDS11111 END111111
COMMON BLOCKS 54 111 202 BASICDS111 5 PROPTY111 7 EVENTX1111 41 PARAMS1111 940
PARMI11111
ENTRY POINTS
MOVFBI1111

139 MOVFBI 09/29/75
PROGRAM LENGTH
MOVFBI1111 1029
EXTERNALS
EXP111111 RBAREX1111 NEXT111111 INOWRL1111 XMIT111111 TIMVAR1111 SORT111111 ASIN111111 ATANI11111 COS1111111
DSWPD1111 STRIF1111 SIN111111 UNIV11111 VECLIN1111 8FIELD1111 LOCLAX1111 TAN111111 NLOKDS11111 END111111
COMMON BLOCKS 54 111 202 BASICDS111 5 EVENTX1111 41
PARMI11111
ENTRY POINTS
MOVFBI1111

140 MULT111 09/13/75
PROGRAM LENGTH
MULT111111 60
EXTERNALS
END111111
ENTRY POINTS
MULT111111

141 MULTOAR 10/01/75
PROGRAM LENGTH
MULTOAR111 306
EXTERNALS
INOWRL1111 XMIT111111 RADTRAN111 COS111111 SIN111111 NLOKDS1111 SORT111111 EXP1111111 END1111111
COMMON BLOCKS 111 113 BASICDS111 5 CONCON111 12 CONCON211 2
ENTRY POINTS
MULTOAR1111

142 NOISE11 09/30/75
PROGRAM LENGTH
NOISE1111 670
EXTERNALS
INOWRL1111 XMIT111111 RITEZ111111 XMAG111111 COS111111 SIN111111 NEXT111111 MIXER11111 INOWRD1111 SUBVEC1111
EXTENT1111 HTOS111111 VECLIN1111 ELDENST1111 COLLFI1111 ABSINC1111 RBAREX1111 RITEF11111 ACQOER1111 STOHI11111
NLOKDS1111 END111111
COMMON BLOCKS 111 130 BASICDS111 5 CONCON111 12 CONCON211 2
ENTRY POINTS
NOISE11111

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143 NSOLVE1 09/13/75
PROGRAM LENGTH
NSOLVE111 140
EXTERNALS
JCORTAN111 MATNVRT111 MATMULT111 OUTPTC111 END111111
ENTRY POINTS
NSOLVE1111

144 OFFSET1 09/13/75
PROGRAM LENGTH
OFFSET111 607
EXTERNALS
INDWEL111 SORT111111 ALOG111111 RBAREX1111 NEXT111111 SUBVEC1111 XMA6111111 CREATE1111 DSPWRD1111 PUTBOT1111
OUTPTC1111 END111111
COMMON BLOCKS
111 202 BASICOS111 5 CONCON1111 12 CONCON2111 2 CONSB11111 50
ENTRY POINTS
OFFSET1111

145 ONEMG51 09/13/75
PROGRAM LENGTH
ONEMG5111 946
EXTERNALS
SORT111111 END111111
ENTRY POINTS
ONEMG51111

146 ORBPT11 09/13/75
PROGRAM LENGTH
ORBPT1111 319
EXTERNALS
XMT11111111 ACQOER1111 ORBTIM1111 COS11111111 FDIV111111 ACOS111111 OUTPTC1111 SIN11111111 SORT11111111 ATAN21111111
EULANG1111 TRNSFM1111 GRAV111111 QBERROR1111 STOP11111111 END11111111
COMMON BLOCKS
CONCON1111 12 CONCON2111 2
ENTRY POINTS
ORBPT111111

147 ORB2111 09/13/75
PROGRAM LENGTH
ORB211111 967
EXTERNALS
XMA6111111 SEPA11111111 UNITV111111 CROSS111111 EULANG1111 SORT11111111 ASINI111111 SIN11111111 OUTPTC1111
QBERROR1111 STOP11111111 FDIV111111 ACOS11111111 COS11111111 ALOG111111 ATAN211111 EXP11111111 ATAN111111 DOT11111111
ORB21111111 XMT11111111 END11111111
COMMON BLOCKS
CONCON1111 12 CONCON2111 2
ENTRY POINTS
ORB21111111

148 OUTLIST 09/13/75
PROGRAM LENGTH
OUTLIST111 503

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EXTERNALS
INWPL: HEAD: STOUT: NEXT: DSLNTH: LOCKS: XMIT: BIT: PACK: OUTSET:
OUTCOL: NLOKS: PUTDM: SETSCAL: SETPLOT: PLOTOUT: TITLER: DYNPLOT: END:
COMMON BLOCKS
111 111 BASICS: 5
ENTRY POINTS
OUTLIST:

149 OUTRTNI 09/13/75
PROGRAM LENGTH
OUTRTNI: 103
EXTERNALS
CBSTRV: NEXT: DSPWRD: OUTLIST: NLOKS: WIPUT: DSLNTH: END:
COMMON BLOCKS
111 115 BASICS: 5
ENTRY POINTS
OUTRTNI:

150 PCHEM: 09/23/75
PROGRAM LENGTH
PCHEM: 816
EXTERNALS
OUTPTC: EXP: TEXT: END:
COMMON BLOCKS
BLANKC: 1985 BLANKC2: 804 DEPDAT: 52 INTDAT: 59 CNSTN: 11 TEMPI: 418
ENTRY POINTS
PCHEM:

151 PEDEP: 09/13/75
PROGRAM LENGTH
PEDEP: 98
EXTERNALS
INDWRL: DEPDAT: WOP: INDWRD: WOP: WOP: END:
COMMON BLOCKS
111 202 BASICS: 5 N13NKG: 6
ENTRY POINTS
PEDEP:

152 PGROUP: 09/13/75
PROGRAM LENGTH
PGROUP: 206
EXTERNALS
INDWRL: XMA: CREATE: MBAREX: VECLIN: PUTBOT: NLOKS: END:
COMMON BLOCKS
111 130 BASICS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
PGROUP:

153 PHCONSR 09/13/75
PROGRAM LENGTH
PHCONSR: 313
EXTERNALS
GBNTRY: ECRD: MIXER: END: INDWRL: HYDROG: CHEMS: GRIDUP: REZONE: MOVFB2:

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BLANKC1111 1985 BLANKC2111 804 CNSTN1111 11 INTDAT1111 59 PRPREG1111 5 CMXEG1111 4
ENTRY POINTS
PINT111111

159 PLHEAVI 09/30/75
PROGRAM LENGTH
PLHEAV1111 1375
EXTERNALS
FDIR111111 MCHAR1111 SETPLOT1111 ISOPLOT1111 ROTVEC1111 UNITV1111 HFETCH1111 OUTPTS1111 OUTPTC1111 EXP111111
GETXDY1111 PLOTPT1111 TERPV1111 SETNAM1111 SETNAM1111 SETTITLE1111 PLOTOUT1111 END111111
COMMON BLOCKS
HEIGHT1111 105 PARAMS1111 940 PRPREG1111 5 MGRID1111 3352 MGRID1111 427
ENTRY POINTS
PLHEAV1111 PLZEAV1111

160 PLINE1 09/13/75
PROGRAM LENGTH
PLINE1111 489
EXTERNALS
SORT111111 PINT111111 BEDGE111111 END111111
COMMON BLOCKS
BLANKC1111 1985 EVENTX1111 41 INTDAT1111 59 CNSTN1111 11 PRPREG1111 5 PARAMS1111 940 TEMP111111 418
ENTRY POINTS
PLINE1111

161 PLKINK: 09/25/75
PROGRAM LENGTH
PLKINK1111 482
EXTERNALS
INDWMD1111 NEXT111111 CREATE1111 PUTOIA1111 SIN111111 COS111111 TAN111111 ISOPLOT1111 GETXDY1111 PLKSEG1111
SORT111111 PLOTPT1111 PLOTXP1111 SETNAMX1111 SETNAMX1111 OUTPTS1111 SETTITLE1111 PLOTOUT1111 END111111
COMMON BLOCKS
111 202 BASICDS111 5
ENTRY POINTS
PLKINK1111

162 PLKSEGI 09/13/75
PROGRAM LENGTH
PLKSEGI111 87
EXTERNALS
PLOTPT1111 END111111
ENTRY POINTS
PLKSEGI111

163 PLOTAXI 09/13/75
PROGRAM LENGTH
PLOTAXI111 245
EXTERNALS
PLOT111111 XMIT111111 ALOG101111 RBAREX1111 RBAXEX1111 OUTPTS1111 ALFABET1111 END111111
ENTRY POINTS
PLOTAXI111

164 PLSTRII 09/29/75

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PROGRAM LENGTH
PLSTRI: 468
EXTERNALS
RAREX: 153
SETITLE: 153
COMMON BLOCKS
MGRIO: 427
ENTRY POINTS
PLSTRI: 5

165 PLTRM: 09/13/75
PROGRAM LENGTH
PLTRM: 153
EXTERNALS
INDWRD: 153
COMMON BLOCKS
111 BASICDS: 5
ENTRY POINTS
PLTRM: 2

166 PLTN: 09/13/75
PROGRAM LENGTH
PLTN: 1282
EXTERNALS
PLOTS: 1282
OUTPTS: 1282
COMMON BLOCKS
111 BASICDS: 5
ENTRY POINTS
PLTN: 4

167 PMASS: 09/13/75
PROGRAM LENGTH
PMASS: 337
EXTERNALS
EXPI: 337
COMMON BLOCKS
CONCON: 12
ENTRY POINTS
PMASS: 2

168 PMASS: 10/01/75
PROGRAM LENGTH
PMASS: 429
EXTERNALS
INDWRD: 429
COMMON BLOCKS
111 BASICDS: 5
ENTRY POINTS
PMASS: 2

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169 POINTS: 09/30/75
PROGRAM LENGTH
POINTS: 245
EXTERNALS
INDWRD: XMIT: XWAG: SEPA: UNIT: SIN: COS: MTC: VECL: CREATE:
PUTRA: LSLN: NEXT: SUBVE: PROJ: DSPWRD: EXTRA: MIXER: END:
COMMON BLOCKS
111 130 BASICDS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
POINTS:

170 POSLIST 09/13/75
PROGRAM LENGTH
POSTLIST: 185
EXTERNALS
INDWRD: NEXT: WHERE: RADTRN: SORT: CREATE: DSPWRD: XMIT: RCSMODL: SUBVEC:
UNIT: DOT: RITEF: PUTRA: NLOKDS: END:
COMMON BLOCKS
111 113 BASICDS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
POSTLIST:

171 POSSV: 09/13/75
PROGRAM LENGTH
POSSV: 282
EXTERNALS
INDWRD: CREATL: WHERE: RADTRN: XMIT: RCSMODL: SUBVEC: UNITV: DOT: SORT:
PUTRA: NLOKDS: NEXT: DSPWRD: END:
COMMON BLOCKS
111 113 BASICDS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
POSSV:

172 POTSOL: 09/13/75
PROGRAM LENGTH
POTSOL: 1302
EXTERNALS
ALOG: WRDISK: SOLVX: OUTPTC: XMIT: SORT: ATAN2: COS: SIN: END:
COMMON BLOCKS
3352 WGRID: 427 STR: 300 LARGE: 14079 IOS: 6
ENTRY POINTS
POTSOL:

173 PREDATA 09/13/75
PROGRAM LENGTH
PREDATA: 675
EXTERNALS
RETNW: INPUTC: IFENDF: ENDDOC: CHEKFIL: OUTPTC: XMIT: MCHAR: ACQGER: BACKSP:
TRNERR: HEAD: END:
COMMON BLOCKS
3
PROSAV:
ENTRY POINTS
PREDATA: WORDATA:

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174 PREDLOC 09/13/75
 PROGRAM LENGTH
 PREDLOC: 189
 EXTERNALS
 INDRWL: 111
 END: 111
 COMMON BLOCKS 111 BASICOS: 5
 ENTRY POINTS
 PREDLOC:

175 PROMPG: 09/18/75
 PROGRAM LENGTH
 PROMPG: 662
 EXTERNALS
 QENTRY: 111
 INDRWL: 111
 END: 111
 COMMON BLOCKS 111
 ENTRY POINTS
 PROMPG:

176 PROPTY: 09/13/75
 PROGRAM LENGTH
 PROPTY: 412
 EXTERNALS
 INDRWL: 111
 END: 111
 COMMON BLOCKS 111
 ENTRY POINTS
 PROPTY:

177 PTORCH: 09/13/75
 PROGRAM LENGTH
 PTORCH: 117
 EXTERNALS
 INDRWL: 111
 END: 111
 COMMON BLOCKS 111
 ENTRY POINTS
 PTORCH:

178 PTPROP: 09/15/73
 PROGRAM LENGTH
 PTPROP: 180
 EXTERNALS
 INDRWL: 111
 END: 111
 COMMON BLOCKS 111
 ENTRY POINTS
 PTPROP:


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PROGRAM LENGTH
RADRG: 797
EXTERNALS
INDWRL: SURVEC: XWAG: SEPA: S: SORT: LOCLAX: NEXT: PUTBOT:
STOP: RBAREX: DOT: ATAN2: XMIT: ALOS: OUTPTC: VFUNC2: INDRD:
END:
COMMON BLOCKS
202 BASICDS: 5 ARRAYS: 1600 CONCON: 12 CONCON2: 2 CONBB: 50
ENTRY POINTS
RADRG:

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185 RADOUT: 09/25/75
PROGRAM LENGTH
RADOUT: 1577
EXTERNALS
INDWRL: ALOS: RBAREX: EXP: ACGER: END:
COMMON BLOCKS
202 BASICDS: 5
ENTRY POINTS
RADOUT:

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186 RADTRAN: 09/13/75
PROGRAM LENGTH
RADTRAN: 352
EXTERNALS
XMIT: STOP: LOCLAX: VECLIN: SORT: DOT: ATAN2: SEPA: VEC SUM: SUBVEC:
XWAG: S: COS: END:
COMMON BLOCKS
12 CONCON: 2
ENTRY POINTS
RADTRAN:

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187 RADIS: 09/30/75
PROGRAM LENGTH
RADIS: 530
EXTERNALS
QANTV: INDWRL: NEXT: DSPWRD: INDRD: RITEZ: RBAREX: SORT: XMIT: ALOS:
ABSOR: RITEF: NOISE: STOP: CREATE: RADTRAN: SURVEC: ELOENS:
COLF: ABSINC: PUTBOT: PUTDRI: NLOKDS: END:
COMMON BLOCKS
130 BASICDS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
RADIS:

```

```

188 RATE: 09/13/75
PROGRAM LENGTH
RATE: 69
EXTERNALS
RBAREX: EXP: END:
COMMON BLOCKS
CHEM: 198
ENTRY POINTS
RATE:

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```

189 RCSMORL 09/13/75
PROGRAM LENGTH
RCSMORL 303
EXTERNALS
INDWRLL: TUMBLR: SUBVEC: DOT: SEPA: ACQER: TRPLATE: COS: SIN: SORT:
RITE: NLOKS: END:
COMMON BLOCKS 12 CONCON2 2 113 BASICOS 5
ENTRY POINTS
RCSMORL:

190 RDPROC 09/13/75
PROGRAM LENGTH
RDPROC 83
EXTERNALS
QNTV: STOP: SEARCH: VERIFY: TRACK: INDWRLL: WIPUT: NEXT: DESTROY:
END:
COMMON BLOCKS 113 BASICOS 5
ENTRY POINTS
RDPROC:

191 REFCO 09/13/75
PROGRAM LENGTH
REFCO 476
EXTERNALS
INDWRLL: ATMOS: COS: XBETA: RITE: RBAREX: EXP: ATAN2: SIN: ALOG:
COMP3: SORT: NLOKS: END:
COMMON BLOCKS 113 202 BASICOS 5 CONCON1 5 CONCON2 2
ENTRY POINTS
REFCO:

192 REFCO 09/13/75
PROGRAM LENGTH
REFCO 262
EXTERNALS
ELDEN: REFCO: XNAG: INDWRLL: SURVEC: SEPA: RBAREX: COLLF: EXP: BFIELD:
SIN: END:
COMMON BLOCKS 113 130 BASICOS 5 CONCON1 5 CONCON2 2
ENTRY POINTS
REFCO:

193 REFCO 09/13/75
PROGRAM LENGTH
REFCO 237
EXTERNALS
ELDEN: XNAG: INDWRLL: SURVEC: SEPA: RBAREX: COLLF: EXP: SIN: END:
COMMON BLOCKS 113 130 BASICOS 5 CONCON1 5 CONCON2 2
ENTRY POINTS
REFCO:

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REFC02:
194 REFLSTN 09/13/75
PROGRAM LENGTH
REFLSTN: 244
EXTERNALS
INWRD: MULTOAR: CREATL: DSPWRD: INWRD: XMT: RNV: PUTORA: NLOKDS: NEXT:
CREATE: END:
COMMON BLOCKS 113 BASICS: 5
ENTRY POINTS
REFLSTN:

195 REFLST1 09/13/75
PROGRAM LENGTH
REFLST1: 421
EXTERNALS
INWRD: RADTRAN: RNV: CREATL: DSPWRD: INWRD: XMT: INWRD: XMT: RITEF: PUTORA:
NLOKDS: NEXT: CREATE: LSLNTH: PUTBOT: EN:
COMMON BLOCKS 113 BASICS: 5
ENTRY POINTS
REFLST1:

196 REFLST1 09/30/75
PROGRAM LENGTH
REFLST1: 576
EXTERNALS
INWRD: COS: SIN: XMT: XMT: MTOS: NEXT: VECLIN: PROJ: SURVEC:
CROSS: SECOND: CROSL: DOT: SQT: ELDE: FUZINC: COL: GRADNE: BIAS:
RFIL: UNIT: SEPA: CONCON: 12 CONCON2: 2
COMMON BLOCKS 113 BASICS: 5
ENTRY POINTS
REFLST1:

197 REFLST1 09/30/75
PROGRAM LENGTH
REFLST1: 445
EXTERNALS
OBTRY: INWRD: INWRD: XMT: RADTRAN: XMT: XMT: REFCT: RBAREX: SORT: DISPERS:
COS: RITEF: REFLST: LSLNTH: REFLST: NEXT: STOP: SURVEC: VECSUM:
DSPWRD: EXT: ELDE: COL: ABSINC: PUTBOT: PUTORM: NLOKDS: EN:
COMMON BLOCKS 113 BASICS: 5
ENTRY POINTS
REFLST1:

198 REFLST1 09/29/75
PROGRAM LENGTH
REFLST1: 1746
EXTERNALS
ECRD: FRCVOL: EXP: SORT: TEX: RBAREX: ENECHK: ECNR: NEXT: INWRD:

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END:|||||
COMMON BLOCKS
||| 202 BASICDS:| 5 BLANKC:| 1985 BLANKC2:| 804 CNSTN:| 11 PRPREG:| 5 PARAMS:| 940
HEIGHT:| 105 CELLS:| 241 REZONN:| 222 EVENTX:| 41 LINK:|
ENTRY POINTS
REZONE:|

199 RHOZ:| 09/13/75
PROGRAM LENGTH
RHOZ:| 27
EXTERNALS
ATMOS:| END:|
ENTRY POINTS
RHO7:|

200 RICATT: 09/13/75
PROGRAM LENGTH
RICATT:| 346
EXTERNALS
EXP:| ALOG:| E:| END:|
ENTRY POINTS
RICATT:|

201 RITEF: 09/13/75
PROGRAM LENGTH
RITEF:| 298
EXTERNALS
OUTPTC:| LOC:| END:|
COMMON BLOCKS
||| 111 BASICDS:| 5
ENTRY POINTS
RITEF:| RITE:| RITEA:| RITEO:| RITEZ:|

202 RITEV: 09/13/75
PROGRAM LENGTH
RITEV:| 135
EXTERNALS
LOC:| OUTPTC:| END:|
ENTRY POINTS
RITEV:|

203 ROOTT: 09/13/75
PROGRAM LENGTH
ROOTT:| 70
EXTERNALS
RBAPEX:| OUTPTC:| END:|
COMMON BLOCKS
TESTR:| 1
ENTRY POINTS
ROOTT:|

204 ROSCOE: 09/13/75
PROGRAM LENGTH

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ROSCOE: 61
EXTERNALS
QNTTRY: 12 CONCON2: 2 HEDSAV: 3 PROSVV: 3 PLTONT: 1 BASICDS: 5
COMMON BLOCKS
BASCON: 24 CONCON: 12 CONCON2: 2 HEDSAV: 3 PROSVV: 3 PLTONT: 1 BASICDS: 5
ENTRY POINTS
ROSCOE:

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```

205 ROSREAD 09/13/75
PROGRAM LENGTH
ROSREAD: 90
EXTERNALS
QNTTRY: 12 CONCON2: 2 HEDSAV: 3 PROSVV: 3 PLTONT: 1 BASICDS: 5
COMMON BLOCKS
BASCON: 24 CONCON: 12 CONCON2: 2 HEDSAV: 3 PROSVV: 3 PLTONT: 1 BASICDS: 5
ENTRY POINTS
ROSREAD:

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206 ROTVEC 09/13/75
PROGRAM LENGTH
ROTVEC: 94
EXTERNALS
QNTTRY: 12 CONCON2: 2 HEDSAV: 3 PROSVV: 3 PLTONT: 1 BASICDS: 5
COMMON BLOCKS
BASCON: 24 CONCON: 12 CONCON2: 2 HEDSAV: 3 PROSVV: 3 PLTONT: 1 BASICDS: 5
ENTRY POINTS
ROTVEC:

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207 SCHCK 09/25/75
PROGRAM LENGTH
SCHCK: 85
EXTERNALS
QNTTRY: 12 CONCON2: 2 HEDSAV: 3 PROSVV: 3 PLTONT: 1 BASICDS: 5
COMMON BLOCKS
BASCON: 24 CONCON: 12 CONCON2: 2 HEDSAV: 3 PROSVV: 3 PLTONT: 1 BASICDS: 5
ENTRY POINTS
SCHCK:

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208 SEARCH 09/13/75
PROGRAM LENGTH
SEARCH: 785
EXTERNALS
QNTTRY: 12 CONCON2: 2 HEDSAV: 3 PROSVV: 3 PLTONT: 1 BASICDS: 5
COMMON BLOCKS
BASCON: 24 CONCON: 12 CONCON2: 2 HEDSAV: 3 PROSVV: 3 PLTONT: 1 BASICDS: 5
ENTRY POINTS
SEARCH:

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209 SEARCH 09/13/75
PROGRAM LENGTH
SEARCH: 264

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EXTERNALS
INDWRD!!!! DSLNTH!!!! ORBP!!!! CORTAN!!!! XMT!!!! GOTOALT!!!! PLTRM!!!! SUBVEC!!!! SEPA!!!! XMAG!!!!
LOCAX!!!! DOT!!!! ATAN2!!!! RANF!!!! CREATE!!!! PUTORA!!!! BLSTIC!!!! NLOKDS!!!! END!!!!
COMMON BLOCKS
!!! 113 BASICS!!!! 5 CONCON!!!! 12 CONCON2!!!! 2
ENTRY POINTS
SEARCH!!!!

210 SEGPLT! 09/13/75
PROGRAM LENGTH
SEGPLT!!!! 171
EXTERNALS
PLOT!!!! SYMBOL!!!! EDGE!!!! END!!!!
ENTRY POINTS
SEGPLT!!!!

211 SETPLOT 09/13/75
PROGRAM LENGTH
SETPLOT!!!! 720
EXTERNALS
XMT!!!! MCHAR!!!! OUTPTC!!!! OUTPTS!!!! ACQOER!!!! RBAIEX!!!! ENO!!!!
COMMON BLOCKS
IMAG!!!! 561
ENTRY POINTS
ISOPLOT!!!! GETDXDY!!!! PLOTPT!!!! GETPNT!!!! PLOTXP!!!! PLOTYMI!!!! SETNAMV!!!! SETTITLE!!!!
PLOTOUT!!!!

212 SETSCAL 09/13/75
PROGRAM LENGTH
SETSCAL!!!! 189
EXTERNALS
OUTPTS!!!! INPUTS!!!! FOIV!!!! ACQOER!!!! ENO!!!!
ENTRY POINTS
SETSCAL!!!!

213 SHEATH! 09/13/75
PROGRAM LENGTH
SHEATH!!!! 55
EXTERNALS
INDWRD!!!! ALTF!!!! ACQOER!!!! TRPLATE!!!! ENO!!!!
COMMON BLOCKS
!!! 111 BASICS!!!! 5
ENTRY POINTS
SHEATH!!!!

214 SLDANGL 09/13/75
PROGRAM LENGTH
SLDANGL!!!! 497
EXTERNALS
XMT!!!! ELF!!!! COS!!!! UNITV!!!! CROSL!!!! INOWRD!!!! SUBVEC!!!! DOT!!!! SORT!!!! EXIT!!!!
SIN!!!! ASPECT!!!! ENO!!!!
COMMON BLOCKS
!!! 130 BASICS!!!! 5 CONCON!!!! 12 CONCON2!!!! 2

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ENTRY POINTS
SLOANGL:

215 SLNINT: 09/13/75
PROGRAM LENGTH
SLNINT: 145
EXTERNALS
INDWR: INDWR: NEXT: NLOKS: END:
COMMON BLOCKS
113 BASICOS: 5
ENTRY POINTS
SLNINT:

216 SLNINT: 09/13/75
PROGRAM LENGTH
SLNINT: 178
EXTERNALS
INDWR: INDWR: SORT: NEXT: NLOKS: END:
COMMON BLOCKS
113 BASICOS: 5
ENTRY POINTS
SLNINT:

217 SOLCYC: 09/13/75
PROGRAM LENGTH
SOLCYC: 31
EXTERNALS
COS: END:
COMMON BLOCKS
21
ENTRY POINTS
SOLCYC:

218 SOLORR: 09/13/75
PROGRAM LENGTH
SOLORR: 105
EXTERNALS
SIN: COS: END:
COMMON BLOCKS
TIME: 8
ENTRY POINTS
SOLORR:

219 SOLVE: 09/13/75
PROGRAM LENGTH
SOLVE: 587
EXTERNALS
OUTPTC: END:
ENTRY POINTS
SOLVE:

220 SOLVX: 09/13/75
PROGRAM LENGTH

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SOLVX: 1485
EXTERNALS
RDISK: SYMNV: OUTPTC: MULT: WRDISK: STOP: END:
COMMON BLOCKS
IOS: 6
ENTRY POINTS
SOLVX:

221 SOLZEN: 09/13/75
PROGRAM LENGTH
SOLZEN: 68
EXTERNALS
COS: SIN: END:
COMMON BLOCKS
ATMOUT: 21 TIME: 8
ENTRY POINTS
SOLZEN:

222 SPCMIN: 10/01/75
PROGRAM LENGTH
SPCMIN: 2598
EXTERNALS
EXP: ACQOER: ALOG10: FITTER: ALOG: SOLVE: ATMOS: RBAPEX: END:
COMMON BLOCKS
ATMOSN: 6 ATMOUT: 21 ALTODN: 119 ZMCHEX: 1
ENTRY POINTS
SPCMIN:

223 SPCULAR: 09/13/75
PROGRAM LENGTH
SPCULAR: 79
EXTERNALS
INCMPL: MIXER: SUBVEC: EXT: UNITV: VECLIN: NLOKOS: END:
COMMON BLOCKS
BASICS: 5
ENTRY POINTS
SPCULAR:

224 SPECOP: 09/13/75
PROGRAM LENGTH
SPECOP: 1239
EXTERNALS
ALOG: EXP: SORT: END:
COMMON BLOCKS
ATMOSN: 6 ATMOS: 15 WRATE: 159
ENTRY POINTS
SPECOP:

225 SPECOD: 09/13/75
PROGRAM LENGTH
SPECOD: 221
EXTERNALS
EXP: END:

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COMMON BLOCKS
ATMOS: 15  WRATE: 159
ENTRY POINTS
SPEC00:

226 SPLTGAT 09/13/75
PROGRAM LENGTH
SPLTGAT: 257
EXTERNALS
INDW: NEXT: NLOKDS: AMBON: SORT: COS: SIN: QINVT: END:
COMMON BLOCKS
111 113 BASICDS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
SPLTGAT:

227 SRMASS: 09/13/75
PROGRAM LENGTH
SRMASS: 66
EXTERNALS
ATMOS: END:
COMMON BLOCKS
CNSN: 11 ATMOUN: 21
ENTRY POINTS
SRMASS:

228 STATUS: 09/13/75
PROGRAM LENGTH
STATUS: 68
EXTERNALS
OUTPIC: END:
COMMON BLOCKS
HGRID: 3352
ENTRY POINTS
STATUS:

229 STOHI: 09/13/75
PROGRAM LENGTH
STOHI: 29
EXTERNALS
SGRT: END:
COMMON BLOCKS
CONCON: 12 CONCON2: 2
ENTRY POINTS
STOHI:

230 STOPRUN 09/13/75
PROGRAM LENGTH
STOPRUN: 21
EXTERNALS
GRNTRY: DSAOMP: END:
COMMON BLOCKS
111 111 BASICDS: 5
ENTRY POINTS

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STOPRUN!!!

231 STRCTUR 09/13/75
PROGRAM LENGTH
STRUCTURE!!! 130
EXTERNALS
INDWRD!!!! NEXT!!!! DSPWRD!!!! QINIT!!!! MIXER!!!! MFETCH!!!! END!!!!!!
COMMON BLOCKS
!!! 130 BASICDS!!! 5 CONCON!!!! 12 CONCON2!!! 2
ENTRY POINTS
STRUCTURE!!!

232 STRIAGI 09/13/75
PROGRAM LENGTH
STRIAGI!!!! 78
EXTERNALS
QANTRY!!!! SORT!!!! EYES!!!! POTSOL!!!! END!!!!!!
COMMON BLOCKS
!!! 111 BASICDS!!! 5 MGRID!!!! 3352 MGRID!!!! 427 STRI!!!!!! 300
ENTRY POINTS
STRIAGI!!!!

233 STRIFI 09/13/75
PROGRAM LENGTH
STRIFI!!!! 154
EXTERNALS
INDWRD!!!! INDWRD!!!! NLOKDS!!!! END!!!!!!
COMMON BLOCKS
!!! 130 BASICDS!!! 5 CONCON!!!! 12 CONCON2!!! 2
ENTRY POINTS
STRIFI!!!!

234 STRIPRI 09/13/75
PROGRAM LENGTH
STRIPRI!!!! 163
EXTERNALS
INSIDE!!!! SUBVEC!!!! DOT!!!!!! END!!!!!!
COMMON BLOCKS
MGRID!!!! 3352 MGRID!!!! 427
ENTRY POINTS
STRIPRI!!!!

235 SUB101 09/13/75
PROGRAM LENGTH
SUB101!!!! 36
EXTERNALS
MBAREX!!!! END!!!!!!
ENTRY POINTS
SUB101!!!!

236 SUB111 09/13/75
PROGRAM LENGTH
SUB111!!!! 36

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EXTERNALS
RBAREX: END:
ENTRY POINTS
SUB:

237 SUB12: 09/13/75
PROGRAM LENGTH
SUB12: 120
EXTERNALS
INCL: SUB10: OUTPTC: END:
COMMON BLOCKS
CONR: 50 202 BASICDS: 5
ENTRY POINTS
SUB12:

238 SUB13: 09/13/75
PROGRAM LENGTH
SUB13: 237
EXTERNALS
INCL: INDRD: RBAREX: SORT: END:
COMMON BLOCKS
CONR: 50 202 BASICDS: 5
ENTRY POINTS
SUB13:

239 SUB14: 09/13/75
PROGRAM LENGTH
SUB14: 123
EXTERNALS
INDR: XMT: NEXT: INDRD: SURVEC: XMG: VECLIN: END:
COMMON BLOCKS
CONR: 50 202 BASICDS: 5
ENTRY POINTS
SUB14:

240 SUB2: 09/13/75
PROGRAM LENGTH
SUB2: 59
EXTERNALS
VFUNC: END:
ENTRY POINTS
SUB2:

241 SUB3: 09/13/75
PROGRAM LENGTH
SUB3: 680
EXTERNALS
INDRD: ACGER: SUB4: SORT: VFUNC: VFUNC2: RBAREX: SUB5: SUB6: END:
COMMON BLOCKS
CONR: 50 202 BASICDS: 5 FORPAR: 25 CONBR: 50
ENTRY POINTS
SUB3:

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242 SUB4111 09/13/75
 PROGRAM LENGTH 32
 SUB411111
 EXTERNALS
 SORT111111 END111111
 ENTRY POINTS
 SUB411111

243 SUB5111 09/13/75
 PROGRAM LENGTH 36
 SUB511111
 EXTERNALS
 END111111
 ENTRY POINTS
 SUB511111

244 SUB6111 09/13/75
 PROGRAM LENGTH
 SUB611111 134
 EXTERNALS
 END111111
 ENTRY POINTS
 SUB611111

245 SUB9111 09/19/75
 PROGRAM LENGTH
 SUB911111 493
 EXTERNALS
 ACQOER111 SUR101111 SUB111111 SORT111111 TAN111111 ALOG111111 END111111
 COMMON BLOCKS
 COVR111111 50 111 202 BASICDS111 5 FORPAR111 25
 ENTRY POINTS
 SUB911111

246 SVPK11 09/13/75
 PROGRAM LENGTH
 SVPK1111 195
 EXTERNALS
 INDWPL111 NEXT111111 NLOKDS1111 AMBGN1111 SORT111111 COS111111 SIN111111 END111111
 COMMON BLOCKS
 111 113 BASICDS111 5 CONCON111 12 CONCON211 2
 ENTRY POINTS
 SVPK1111

247 SYM1V1 09/13/75
 PROGRAM LENGTH
 SYM1V111 235
 EXTERNALS
 END111111
 ENTRY POINTS
 SYM1V111

248 SYZYGY 09/13/75


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PROGRAM LENGTH 265
SYZYGYIIII
EXTERNALS
ATAN2IIIIII SORTIIIIII SINIIIIII ALOGIIIIII TANIIIIII ATANIIIIII ENDIIIIII
COMMON BLOCKS 7 CONCON2III 2
GEOM0IIIIII
ENTRY POINTS
SYZYGYIIII

249 TARGMSV 09/13/75
PROGRAM LENGTH
TARGMSVIIII 175
EXTERNALS
INDWRLIIII XMITIIIIII SORTIIIIII LSLNTHIIII INWDRIIIII NEXTIIIIII AMBGNIIII FBCLTRIIII ALOGIOIIII NLOKOSIIII
ENDIIIIII
COMMON BLOCKS 113 BASICDSIII 5
ENTRY POINTS
TARGMSVIIII

250 TARGMTS 09/13/75
PROGRAM LENGTH
TARGMTSIIII 116
EXTERNALS
INDWRLIIII XMITIIIIII MLTSPILTII FBCLTRIIII MNOPLSMIIII SLNINTMIIII ALOGIOIIII NLOKOSIIII ENDIIIIII
COMMON BLOCKS 113 BASICDSIII 5
ENTRY POINTS
TARGMTSIIII

251 TARGMIS 09/13/75
PROGRAM LENGTH
TARGMISIIII 144
EXTERNALS
INDWRLIIII SPLTGATIIII FBCLTRIIII MNOPLSIIII SLNINTIIII XMITIIIIII SVPEAKSIIII NLOKOSIIII ALOGIOIIII ENDIIIIII
COMMON BLOCKS 113 BASICDSIII 5
ENTRY POINTS
TARGMISIIII

252 TARGSLI 09/13/75
PROGRAM LENGTH
TARGSLIIII 252
EXTERNALS
OANTRYIIII INWDRIIIII LSLNTHIIII TARGMTSIIII TARGMSVIIII TARGMISIIII INDWRLIIII XMITIIIIII MNOPLSIIII FBCLTRIIII
PIFFFIIII SINIIIIII RBAREXIIII ALOGIOIIII NLOKOSIIII CREATEIIII PUTTOPIIII ENDIIIIII
COMMON BLOCKS 113 BASICDSIII 5 CONCON1IIII 12 CONCON2IIII 2
ENTRY POINTS
TARGSLIIII

253 TAYLOR 09/13/75
PROGRAM LENGTH

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TAYLOR!!!! 50
 EXTERNALS
 END!!!!!!
 ENTRY POINTS
 TAYLOR!!!!

254 TERPHV 09/13/75
 PROGRAM LENGTH
 TERPHV!!!! 136
 EXTERNALS
 FOIV!!!!!! END!!!!!!
 ENTRY POINTS
 TERPHV!!!!

255 TEXK!!! 09/13/75
 PROGRAM LENGTH
 TEXK!!!!!! 209
 EXTERNALS
 ALOG!!!!!! EXP!!!!!! SORT!!!!!! END!!!!!!
 ENTRY POINTS
 TEXK!!!!!!

256 TIMVARI 09/13/75
 PROGRAM LENGTH
 TIMVARI!!!! 114
 EXTERNALS
 ECRD!!!!!! OUTPTC!!!!!! END!!!!!!
 COMMON BLOCKS
 BLANKC!!!! 1985 BLANKC2!!!! 804 CNSTN2!!!! 11 PPREG!!!! 5 HEIGHT!!!! 105
 ENTRY POINTS
 TIMVARI!!!!

257 TRACK!! 09/13/75
 PROGRAM LENGTH
 TRACK!!!!!! 914
 EXTERNALS
 INDRH!!!!!! NLOKOS!!!!!! PRELOC!!!!!! RITEF!!!!!! DLSNTH!!!!!! PLTRFM!!!!!! SUBVEC!!!!!! XMAG!!!!!! DOT!!!!!! SEPA!!!!!!
 INDRH!!!!!! NEXT!!!!!! REMOVE!!!!!! DSTROY!!!!!! CREATE!!!!!! PUTOR!!!!!! RADTRN!!!!!! SORT!!!!!! WHERE!!!!!! XMIT!!!!!!
 DSPMD!!!!!! STOP!!!!!! CREATL!!!!!! PUTROT!!!!!! XTHRSN!!!!!! RITEZ!!!!!! ALOG10!!!!!! PUTDRM!!!!!! XTHRSN!!!!!!
 FILTER!!!!!! LOCLAX!!!!!! MATSUB!!!!!! MATFLIP!!!!!! MATMULT!!!!!! END!!!!!!
 COMMON BLOCKS
 CONCON!!!!!! 12 CONCON2!!!! 2 111 115 BASICDS!!!! 5
 ENTRY POINTS
 TRACK!!!!!! TRACK!!!!!!

258 TRACKIN 09/13/75
 PROGRAM LENGTH
 TRACKIN!!!! 1036
 EXTERNALS
 INDRH!!!!!! PLTRFM!!!!!! WHERE!!!!!! SUBVEC!!!!!! DLSNTH!!!!!! RITEF!!!!!! XMAG!!!!!! DOT!!!!!! XMIT!!!!!! CREATE!!!!!!
 DSPMD!!!!!! PUTOR!!!!!! NLOKOS!!!!!! NEXT!!!!!! STOP!!!!!! CREATL!!!!!! RADTRN!!!!!! SORT!!!!!! XTHRSN!!!!!!
 ALOG10!!!!!! PUTDRM!!!!!! MEASERR!!!!!! DSKPND!!!!!! INDRH!!!!!! INDRQ!!!!!! DSTROY!!!!!! NSOLVE!!!!!! JCGBIA!!!!!! MATNVST!!!!!! MATMULT!!!!!!
 MATFLIP!!!!!! VECLIN!!!!!! FILTER!!!!!! PUTTOP!!!!!! PUTROT!!!!!! MATNVST!!!!!! MATMULT!!!!!!

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COMMON BLOCKS
111 115 BASICSD111 5 CONCON111 12 CONCON211 2
ENTRY POINTS
TRACKIN111 TRCKINX111

259 TRPLIN1 09/13/75
PROGRAM LENGTH
TRPLIN111 120
EXTERNALS
STOP111111 ALOG111111 RBAREX1111 END111111
ENTRY POINTS
TRPLIN111

260 TRPSTRI 09/13/75
PROGRAM LENGTH
TRPSTRI111 226
EXTERNALS
FOIV111111 END111111
COMMON BLOCKS
MGRID11111 3352 MGRID11111 427
ENTRY POINTS
TRPSTRI111

261 TUMBLR1 09/13/75
PROGRAM LENGTH
TUMBLR1111 224
EXTERNALS
INWRD11111 ALTF111111 ACQOER11111 UNITV111111 RANF111111 CROSS111111 ATAN111111 MATADD111111 SIN111111 COS111111
END111111
COMMON BLOCKS
111 111 BASICSD111 5
ENTRY POINTS
TUMBLR1111

262 UPDAT1 09/13/75
PROGRAM LENGTH
UPDAT1111 226
EXTERNALS
QANTRY11111 MIXER111111 END111111111 MODEL111111 NEXT111111 INOWRL11111 XMT111111111 RITEZ111111 INOWRD11111 NLOKDS11111
CREATE11111 PUTORAI11111
COMMON BLOCKS
111 139 BASICSD111 5 CONCON1111 12 CONCON2111 2
ENTRY POINTS
UPDAT1111

263 VERIFY1 09/13/75
PROGRAM LENGTH
VERIFY1111 635
EXTERNALS
INOWRL11111 PLTFRM11111 WHERE111111 SURVEC111111 XNAG111111111 RITEF111111111 DSLNTH111111 DOT111111111 XMT111111111 RADTRAN11111
SIN111111111 CREATE111111 DSPWRD111111 ALOG101111111 MEASER111111111 PUTORM111111111 DSXPND111111111 NEXT111111111 STOP111111111 LSLNTH11111
PUTROT111111 XTHRSWS11111
COMMON BLOCKS

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    115 BASICS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
VERIFY: VERIFY:
264 VFUNC1: 09/13/75
PROGRAM LENGTH 34
VFUNC1: 34
EXTERNALS
EXPI: END:
ENTRY POINTS
VFUNC1:
265 VFUNC2: 09/13/75
PROGRAM LENGTH 34
VFUNC2: 34
EXTERNALS
EXPI: SORT: END:
ENTRY POINTS
VFUNC2:
266 WBLD: 09/13/75
PROGRAM LENGTH 491
WBLD: 491
EXTERNALS
GNTY: RITEZ: INDR: XMT: ABSOR: ALOG: INWRD: PUTBOT: RBAREX: RCSMODL: UNITV:
VECL: ELDEN: SORT: RNV: CREATE: INWRD: PUTBOT: NLOKOS: DSTRV:
END:
COMMON BLOCKS
115 BASICS: 5 CONCON: 12 CONCON2: 2
ENTRY POINTS
WBLD:
267 WHERE: 09/13/75
PROGRAM LENGTH 57
WHERE: 57
EXTERNALS
INDR: ORP: CORTAN: BLS: XMT: NLOKOS: END:
COMMON BLOCKS
CONCON: 12 CONCON2: 2 113 BASICS: 5
ENTRY POINTS
WHERE:
268 WIND: 09/13/75
PROGRAM LENGTH 248
WIND: 248
EXTERNALS
CROSS: CROS: SUBVEC: XMT: UNITV: DOT: RBAREX: SORT: EXP: XMT:
END:
ENTRY POINTS
WIND:
269 WOB: 09/13/75
PROGRAM LENGTH

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WORD!!!! 58
EXTERNALS
RBAREX!!!! END!!!!!!
COMMON BLOCKS
!!! 111 BASICDS!!! 5 N13NXG!!!! 6
ENTRY POINTS
WORD!!!!

270 WOGD!!!! 09/13/75
PROGRAM LENGTH
WOGD!!!! 76
EXTERNALS
TRPLN!!!! RBAREX!!!! END!!!!!!
COMMON BLOCKS
!!! 111 BASICDS!!! 5 N13NXG!!!! 6
ENTRY POINTS
WOGD!!!!

271 WOGP!!!! 09/13/75
PROGRAM LENGTH
WOGP!!!! 28
EXTERNALS
TRPLN!!!! END!!!!!!
COMMON BLOCKS
!!! 111 BASICDS!!! 5 N13NXG!!!! 6
ENTRY POINTS
WOGP!!!!

272 WOGI!!!! 09/13/75
PROGRAM LENGTH
WOGI!!!! 214
EXTERNALS
INOWRL!!!! CREATL!!!! RITEF!!!! DSPWRD!!!! NLOKDS!!!! PUTORM!!!! END!!!!!!
COMMON BLOCKS
!!! 111 BASICDS!!! 5 CONCON!!!! 12 CONCON2!!!! 2
ENTRY POINTS
WOGI!!!!

273 WOND!!!! 09/13/75
PROGRAM LENGTH
WOND!!!! 92
EXTERNALS
TRPLN!!!! END!!!!!!
COMMON BLOCKS
!!! 134 BASICDS!!! 5 N13NXG!!!! 6
ENTRY POINTS
WOND!!!!

274 WONP!!!! 09/13/75
PROGRAM LENGTH
WONP!!!! 83
EXTERNALS
TRPLN!!!! END!!!!!!

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COMMON BLOCKS      134 BASICDS111  5 N13NXG1111  6
ENTRY POINTS
WONP111111

275 WON1111 09/13/75
PROGRAM LENGTH
WON111111 454
EXTERNALS
INWR111111 CREATL1111 RITEF111111 EXP11111111 SORT11111111 ALOG11111111 PBAREX111111 DSPWRD111111 NLOKOS111111 PUTDRM111111
END11111111
COMMON BLOCKS
111 134 BASICDS111  5 CONCON1111 12 CONCON2111 2
ENTRY POINTS
WON11111111

276 WOX1111 09/13/75
PROGRAM LENGTH
WOXC111111 39
EXTERNALS
TRPLIN111111 END11111111
COMMON BLOCKS
111 111 BASICDS111  5 N13NXG1111  6
ENTRY POINTS
WOXC111111

277 WOX1111 09/13/75
PROGRAM LENGTH
WOXP111111 33
EXTERNALS
TRPLIN111111 END11111111
COMMON BLOCKS
111 111 BASICDS111  5 N13NXG1111  6
ENTRY POINTS
WOXP111111

278 WOX1111 09/13/75
PROGRAM LENGTH
WOX111111 284
EXTERNALS
INWR111111 CREATL1111 RITEF111111 TRPLIN111111 ALOG11111111 EXP11111111 DSPWRD111111 NLOKOS111111 PUTDRM111111 END11111111
COMMON BLOCKS
111 124 BASICDS111  5 CONCON1111 12 CONCON2111 2
ENTRY POINTS
WOX11111111

279 WRDISK1 09/13/75
PROGRAM LENGTH
WRDISK1111 150
EXTERNALS
XMIT11111111 OUTPTC111111 STOP11111111 END11111111
COMMON BLOCKS
10S111111 6 LARGE111111 14079

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ENTRY POINTS
WROISKIIII RROLSKIIII

280 XBETAI: 09/17/75
PROGRAM LENGTH
XBETAI: 480
EXTERNALS
INWRL: RITEF: NEXT: RBAREX: SIN: SORT: COS: EXP: NLOKDS: END:
COMMON BLOCKS
111 202 BASICS: 5 CONCON: 12 CONCONZ: 2
ENTRY POINTS
XBETAI:

281 XFORM: 09/13/75
PROGRAM LENGTH
XFORM: 470
EXTERNALS
CHOLSK: MATMULT: XMIT: END:
ENTRY POINTS
XFORM: GTOGY: GTOCK: CXTGY: CXTCK: CXTGX:

282 XTHRS: 09/13/75
PROGRAM LENGTH
XTHRS: 48
EXTERNALS
INDWRO: PUTDRM: END:
COMMON BLOCKS
111 113 BASICS: 5
ENTRY POINTS
XTHRS:

283 XYZGEO: 09/13/75
PROGRAM LENGTH
XYZGEO: 111
EXTERNALS
SORT: COS: SIN: ATAN2: END:
COMMON BLOCKS
CNST: 11
ENTRY POINTS
XYZGEO:

284 ZDRUM: 09/13/75
PROGRAM LENGTH
ZDRUM: 43
EXTERNALS
WDRUM: RDRUM: IOCKE: ENDOCK: END:
ENTRY POINTS
ZDRUM: ADPUM:

285 ZTTOUT: 09/13/75
PROGRAM LENGTH
ZTTOUT: 162
EXTERNALS

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OUTPTC!!!! EXIT!!!! END!!!!
COMMON BLOCKS
TIME!!!! 8
ENTRY POINTS
ZITOUT!!!!

286 CREATE! 08/07/74
PROGRAM LENGTH
CREATE!!!! 89
EXTERNALS
QCREATE!!!! QGTZWD!!!! QFLDST!!!! END!!!!
COMMON BLOCKS
!!! 91
ENTRY POINTS
CREATE!!!! CREATL!!!!

287 CREATX! 08/07/74
PROGRAM LENGTH
CREATX!!!! 24
EXTERNALS
QCREAT!!!! END!!!!
COMMON BLOCKS
!!! 91
ENTRY POINTS
CREATX!!!!

288 DSAOMP! 08/07/74
PROGRAM LENGTH
DSADMP!!!! 298
EXTERNALS
QFIELD!!!! OUTPTC!!!! XMIT!!!! QDSRED!!!! END!!!!
COMMON BLOCKS
!!! 91
ENTRY POINTS
DSADMP!!!!

289 DSLNTH! 08/07/74
PROGRAM LENGTH
DSLNT!!!! 22
EXTERNALS
QFIELD!!!! END!!!!
COMMON BLOCKS
!!! 91
ENTRY POINTS
DSLNT!!!!

290 DSPWRD! 08/07/74
PROGRAM LENGTH
DSPWRD!!!! 21
EXTERNALS
QFIELD!!!! END!!!!
COMMON BLOCKS
!!! 91

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ENTRY POINTS
DSPWRO1111

291 DSTROY1 08/07/74
PROGRAM LENGTH
DSTROY1111 220
EXTERNALS
QERROR1111 QDSRED1111 QFIELD1111 QFLDST1111 QDSRYT1111 OPT2WD1111 END111111
COMMON BLOCKS
111 91
ENTRY POINTS
DSTROY1111 QDSRYT1111

292 DSXPND1 08/07/74
PROGRAM LENGTH
DSXPND1111 102
EXTERNALS
QFIELD1111 QFLDST1111 QCREAT1111 XMT111111 QDSRYT1111 END111111
COMMON BLOCKS
111 91
ENTRY POINTS
DSXPND1111

293 INDRD1 08/07/74
PROGRAM LENGTH
INDRD1111 92
EXTERNALS
QFIELD1111 QCREAT1111 QFLDST1111 QDSRED1111 QDSRYT1111 LOCKDS1111 END111111
COMMON BLOCKS
111 91
ENTRY POINTS
INDRD1111 INDR1111

294 LOCKDS1 08/07/74
PROGRAM LENGTH
LOCKDS1111 47
EXTERNALS
QFLDST1111 QFIELD1111 END111111
COMMON BLOCKS
111 91
ENTRY POINTS
LOCKDS1111

295 LISPR1 08/07/74
PROGRAM LENGTH
LISPR1111 145
EXTERNALS
OUTPTC1111 NEXT111111 PREVI1111 NEXTNL1111 PREVNL1111 QFIELD1111 END111111
COMMON BLOCKS
111 91
ENTRY POINTS
LISPR1111

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296 LOCKFL: 08/07/74
   PROGRAM LENGTH
   LOCKFL: 30
   EXTERNALS
   NEXT: LOCKDS: END:
   COMMON BLOCKS
   : 91
   ENTRY POINTS
   LOCKFL:

297 LSLNTH: 08/07/74
   PROGRAM LENGTH
   LSLNTH: 31
   EXTERNALS
   OFIELD: END:
   COMMON BLOCKS
   : 91
   ENTRY POINTS
   LSLNTH:

298 LSTSR: 08/07/74
   PROGRAM LENGTH
   LSTSR: 141
   EXTERNALS
   GFIELD: CREATL:
   COMMON BLOCKS
   : 91
   ENTRY POINTS
   LSTSR:

299 NEXT: 08/07/74
   PROGRAM LENGTH
   NEXT: 178
   EXTERNALS
   OFIELD: NLOKDS:
   COMMON BLOCKS
   : 91
   ENTRY POINTS
   NEXT: NEXTNL: PREVNL:

300 NLOKAL: 08/07/74
   PROGRAM LENGTH
   NLOKAL: 69
   EXTERNALS
   OFIELD: OFLOST: STOP: END:
   COMMON BLOCKS
   : 91
   ENTRY POINTS
   NLOKAL:

301 NLOKOS: 08/07/74
   PROGRAM LENGTH
   NLOKOS: 62

```

```

EXTERNALS
QFIELD: QERRR: QFLOST: END:
COMMON BLOCKS
  91
ENTRY POINTS
  NLOKUS:

302 NLOKEL: 08/07/74
PROGRAM LENGTH
  NLOKEL: 38
EXTERNALS
NEXT: QFIELD: NLOKOS: END:
COMMON BLOCKS
  91
ENTRY POINTS
  NLOKEL:

303 PUTAFT: 08/07/74
PROGRAM LENGTH
  PUTAFT: 228
EXTERNALS
QFIELD: QERRR: QFLOST: QGTZWD: END:
COMMON BLOCKS
  91
ENTRY POINTS
  PUTAFT: PUTBEF:

304 PUTBOT: 08/07/74
PROGRAM LENGTH
  PUTBOT: 140
EXTERNALS
QFIELD: QFLOST: QGTZWD: END:
COMMON BLOCKS
  91
ENTRY POINTS
  PUTBOT: PUTTOP:

305 PUTDOR: 08/07/74
PROGRAM LENGTH
  PUTDOR: 95
EXTERNALS
QFIELD: QERRR: QFLOST: QG08LK: QDSRYT: QDSTRY: END:
COMMON BLOCKS
  91
ENTRY POINTS
  PUTDOR:

306 PUTORD: 08/07/74
PROGRAM LENGTH
  PUTORD: 181
EXTERNALS
LOCZ: QFIELD: QFLOST: AC00ER: QDSRED: PUTBEF: PUTBOT: END:
COMMON BLOCKS

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```

    91
ENTRY POINTS
PUTORDI: PUTORDI: PUTORDI: PUTORDI:
307 QCEASE: 08/07/74
PROGRAM LENGTH
QCEASE: 15
EXTERNALS
QERRORI: DSADMP: DUMP: END:
ENTRY POINTS
QCEASE:
308 QCREAT: 08/07/74
PROGRAM LENGTH
QCREAT: 135
EXTERNALS
QFIELD: QRRAG: QCBK: QFLOST: XMT: END:
COMMON BLOCKS
ENTRY POINTS
QCREAT:
309 QRRAG: 08/07/74
PROGRAM LENGTH
QRRAG: 169
EXTERNALS
QRRAG: QFIELD: QDSRED: QCEASE: QFLOST: QDSRYT: END:
COMMON BLOCKS
ENTRY POINTS
QRRAG:
310 QDSRED: 08/07/74
PROGRAM LENGTH
QDSRED: 74
EXTERNALS
XMT: QERRORI: DSADMP: SORT: PDRUM: IOCHK: END:
COMMON BLOCKS
ENTRY POINTS
QDSRED:
311 QDSRYT: 08/07/74
PROGRAM LENGTH
QDSRYT: 73
EXTERNALS
XMT: QERRORI: DSADMP: SORT: WDRUM: IOCHK: END:
COMMON BLOCKS
ENTRY POINTS
QDSRYT:
312 QERRORI: 08/07/74

```



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PROGRAM LENGTH
QERRR:111 35
EXTERNALS
OUTPTC1111 QERRR1111 END111111
COMMON BLOCKS 91
111
ENTRY POINTS
QERRR1111

313 QFIELD1 08/07/74
PROGRAM LENGTH
QFIELD1111 15
EXTERNALS
1111111111
COMMON BLOCKS 88
111
ENTRY POINTS
QFIELD1111 QFLDST1111

314 QGCBLK1 08/07/74
PROGRAM LENGTH
QGCBLK1111 362
EXTERNALS
QCEASE1111 QFIELD1111 QGCBLK1111 QDSRYT1111 QERRR1111 QFLDST1111 QDSTRY1111 END111111
COMMON BLOCKS 91
111
ENTRY POINTS
QGCBLK1111

315 QGCBLK1 08/07/74
PROGRAM LENGTH
QGCBLK1111 97
EXTERNALS
QFIELD1111 QCEASE1111 QGRBAG1111 QDSRED1111 QFLDST1111 QDSRYT1111 END111111
COMMON BLOCKS 91
111
ENTRY POINTS
QGCBLK1111

316 QGRBAG1 08/07/74
PROGRAM LENGTH
QGRBAG1111 186
EXTERNALS
QERRR1111 QFIELD1111 QFLDST1111 XMIT111111 END111111
COMMON BLOCKS 91
111
ENTRY POINTS
QGRBAG1111 QGRBAX1111

317 QGTZWD1 08/07/74
PROGRAM LENGTH
QGTZWD1111 37
EXTERNALS

```

QFIELD:OZBLOK:OFLDST:END:
COMMON BLOCKS
: 91
ENTRY POINTS
QPTZWD:

318 QINITL: 08/07/74
PROGRAM LENGTH
QINITL: 167
EXTERNALS
XMT:OFLDST:QDSRYT:END:
COMMON BLOCKS
: 91
ENTRY POINTS
QINITL:

319 QPTZWD: 08/07/74
PROGRAM LENGTH
QPTZWD: 28
EXTERNALS
QFIELD:OFLDST:END:
COMMON BLOCKS
: 91
ENTRY POINTS
QPTZWD:

320 QZBLOK: 08/07/74
PROGRAM LENGTH
QZBLOK: 49
EXTERNALS
CREATX:OFLDST:END:
COMMON BLOCKS
: 91
ENTRY POINTS
QZBLOK:

321 QBERROR 08/07/74
PROGRAM LENGTH
QBERROR: 158
EXTERNALS
MCHAR:OUTPTC:KALLER:END:
ENTRY POINTS
QBERROR:

322 REMOVE: 08/07/74
PROGRAM LENGTH
REMOVE: 129
EXTERNALS
QFIELD:QBERROR:QPTZWD:OFLDST:END:
COMMON BLOCKS
: 91
ENTRY POINTS
REMOVE: REMOVE:

```

323 WIPOUT: 09/07/74
PROGRAM LENGTH
WIPOUT: 61
EXTERNALS
QFIELD: REMOVE: DSTROY: OPTZWD: END:
COMMON BLOCKS
: 91
ENTRY POINTS
WIPOUT:

324 ALTF: :
PROGRAM LENGTH
ALTF: 33
EXTERNALS
XMT: XMG: END:
COMMON BLOCKS
BASCON: 24 CONCON: 12
ENTRY POINTS
ALTF:

325 AZF: :
PROGRAM LENGTH
AZF: 26
EXTERNALS
ATAN2: END:
ENTRY POINTS
AZF:

326 CEASE: :
PROGRAM LENGTH
CEASE: 16
EXTERNALS
TITLER: HEAD: EXIT: END:
ENTRY POINTS
CEASE:

327 CHEKFI: :
PROGRAM LENGTH
CHEKFI: 61
EXTERNALS
IFEND: ENDDOC: HEAD: EXIT: END:
COMMON BLOCKS
BASCON: 24
ENTRY POINTS
CHEKFI: NUMFILS: SETIFE: SETNFIL:

328 COUNOUT: :
PROGRAM LENGTH
COUNOUT: 20
EXTERNALS
HEAD: END:
COMMON BLOCKS

```


BASCON!!!! 24
ENTRY POINTS
COUN/OUT!!!

329 CROSS!!! !!!!!!!!!
PROGRAM LENGTH
CROSS!!!! 77
EXTERNALS
SORT!!!! END!!!!
ENTRY POINTS
CROSS!!!! CROS1!!!!

330 DATEF!!! !!!!!!!!!
PROGRAM LENGTH
DATEF!!!! 14
EXTERNALS
MDATE!!!! END!!!!
ENTRY POINTS
DATEF!!!!

331 DOT!!!! !!!!!!!!!
PROGRAM LENGTH
DOT!!!! 25
EXTERNALS
END!!!!
ENTRY POINTS
DOT!!!!

332 DTIMEF! !!!!!!!!!
PROGRAM LENGTH
DTIMEF!!!! 14
EXTERNALS
MTIME!!!! END!!!!
ENTRY POINTS
DTIMEF!!!!

333 ELF!!!! !!!!!!!!!
PROGRAM LENGTH
ELF!!!! 40
EXTERNALS
SORT!!!! ATAN2!!!! END!!!!
ENTRY POINTS
ELF!!!!

334 EULANG! !!!!!!!!!
PROGRAM LENGTH
EULANG!!!! 626
EXTERNALS
ACCS!!!! SIN!!!!
COMMON BLOCKS 12
CONCON!!!!
ENTRY POINTS
EULANG!!!!
FOIV!!!! ATAN2!!!! SEPA!!!! SORT!!!! DOT!!!! COS!!!! END!!!!

```

335 FOI:|||||
PROGRAM LENGTH 5
FOI:|||||
EXTERNALS
|||||
ENTRY POINTS
FOI:|||||

336 GRAV:|||||
PROGRAM LENGTH
GRAV:||||| 55
EXTERNALS
SORT:||||| END:|||||
COMMON BLOCKS 24 CONCON:||||| 12
BASCON:|||||
ENTRY POINTS
GRAV:|||||

337 HEAD:|||||
PROGRAM LENGTH
HEAD:||||| 752
EXTERNALS
DTIMEF:||||| INPUT:||||| IFENDF:||||| OLDATA:||||| INPUTS:||||| SECOND:||||| DATEF:||||| RAND:||||| OUTPTC:||||| LSKIP:|||||
TITLER:||||| MAKUNIT:||||| FOI:||||| SUBHEAD:||||| ENDOC:||||| EXIT:||||| END:|||||
COMMON BLOCKS 24 CONCON:||||| 12 MEDSAV:||||| 3
BASCON:|||||
ENTRY POINTS
HEAD:|||||

338 IN:||||| 10/31/72
PROGRAM LENGTH
IN:||||| 229
EXTERNALS
INPUTC:||||| CHEKFIL:||||| OLDATA:||||| INPUTS:||||| HEAD:||||| OUTPTC:||||| COUNOUT:||||| END:|||||
COMMON BLOCKS 24 CONVRT:||||| 34
BASCON:|||||
ENTRY POINTS
IN:|||||

339 JACOB:|||||
PROGRAM LENGTH
JACOB:||||| 786
EXTERNALS
XMT:||||| MATDIAG:||||| SORT:||||| FOI:||||| END:|||||
ENTRY POINTS
JACOB:|||||

340 KALLER:|||||
PROGRAM LENGTH
KALLER:||||| 10
EXTERNALS
|||||

```

```

ENTRY POINTS
KALLER!!!!

341 LOCLAXI !!!!!!!!!
PROGRAM LENGTH
LOCLAX!!!! 124
EXTERNALS
UNITV!!!! ACQOER!!!! CROSS!!!! XMIT!!!! END!!!!
ENTRY POINTS
LOCLAX!!!!

342 LSKIP!! !!!!!!!!!
PROGRAM LENGTH
LSKIP!!!! 64
EXTERNALS
OUTPIC!!!! END!!!!
COMMON BLOCKS 24
BASCON!!!!
ENTRY POINTS
LSKIP!!!!

343 MATADD! !!!!!!!!!
PROGRAM LENGTH
MATADD!!!! 71
EXTERNALS
END!!!!
ENTRY POINTS
MATADD!!!! MATSUB!!!!

344 MATDIAG !!!!!!!!!
PROGRAM LENGTH
MATDIAG!!!! 35
EXTERNALS
XMIT!!!! END!!!!
ENTRY POINTS
MATDIAG!!!!

345 MATFLIP !!!!!!!!!
PROGRAM LENGTH
MATFLIP!!!! 41
EXTERNALS
END!!!!
ENTRY POINTS
MATFLIP!!!!

346 MATIGEN !!!!!!!!!
PROGRAM LENGTH
MATIGEN!!!! 74
EXTERNALS
JACOBI!!!! END!!!!
ENTRY POINTS
MATIGEN!!!!

```



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347 MATINVI 1111111111
    PROGRAM LENGTH
    MATINVI11 274
    EXTERNALS
    AMIT111111 FDI1111111111 END11111111
    ENTRY POINTS
    MATINVI1111

348 MATMULT 1111111111
    PROGRAM LENGTH
    MATMULT111 47
    EXTERNALS
    ENCI11111111
    ENTRY POINTS
    MATMULT1111

349 MATNVRT 1111111111
    PROGRAM LENGTH
    MATNVRT111 123
    EXTERNALS
    MATINVI1111 END1111111111
    ENTRY POINTS
    MATNVRT1111

350 MATTRANS 1111111111
    PROGRAM LENGTH
    MATTRANS111 32
    EXTERNALS
    ENCI11111111
    ENTRY POINTS
    MATTRANS1111

351 MISTAKE 1111111111
    PROGRAM LENGTH
    MISTAKE111 57
    EXTERNALS
    TITLER1111 08ERROR1111 HEAD11111111 EXTY11111111 END11111111
    ENTRY POINTS
    MISTAKE1111 TRADER1111 SETIFER1111 SETNER1111

352 MIXER11 1111111111
    PROGRAM LENGTH
    MIXER11111 11
    EXTERNALS
    ENCI11111111
    ENTRY POINTS
    MIXER11111111

353 OLDATA1 1111111111
    PROGRAM LENGTH
    OLDATA1111 22
    EXTERNALS
    OUTPYC11111111 END11111111

```

```

COMMON BLOCKS      24
BASCON1111
ENTRY POINTS
OLDATA1111

354 ORBTIM1 11111111
PROGRAM LENGTH
ORPTIM1111 193
EXTERNALS
COS1111111 ACOS1111111 SORT1111111 ALOG1111111 EXP1111111 FOIV1111111 END1111111
COMMON BLOCKS      12
CONCON1111
ENTRY POINTS
ORRTIM1111

355 OUTCOL1 11111111
PROGRAM LENGTH
OUTCOL1111 207
EXTERNALS
HEAD1111111 TITLER1111 OUTPTC1111 LSKIP1111111 END1111111
COMMON BLOCKS      26
BASCON1111
ENTRY POINTS
OUTCOL1111

356 OUTSET1 11111111
PROGRAM LENGTH
OUTSET1111 129
EXTERNALS
XMIT1111111 END1111111
COMMON BLOCKS      26
FRWATS1111
ENTRY POINTS
OUTSET1111

357 PACBIT1 11111111
PROGRAM LENGTH
PACBIT1111 31
EXTERNALS
11111111
ENTRY POINTS
PACX1111111 UNPX1111111 BITX1111111

358 PROJ111 11111111
PROGRAM LENGTH
PROJ1111111 56
EXTERNALS
FOIV1111111 END1111111
ENTRY POINTS
PROJ1111111

359 RNV1111 11111111
PROGRAM LENGTH

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```

          RNVTIIII 96
EXTERNALS
ACGERRIIII RANFIIIIII ALOGIIIIII SORTIIIIII COSIIIIII SINIIIIII ENDIIIIII
COMMON BLOCKS
CO.TP.NVIIII 1
ENTRY POINTS
RNVTIIIIII RNVTETIIII RNVTSETIIII

360 SEPAIIII IIIIIIIII
PROGRAM LENGTH
SEPAIIIIII 93
EXTERNALS
XMAIIIIII DOTIIIIII FDIIVIIIIII ASINIIIIII ACOSIIIIII ENDIIIIIIII
ENTRY POINTS
SEPAIIIIII

361 SETKORDI IIIIIIIII
PROGRAM LENGTH
SETKORDIIII 201
EXTERNALS
COUNOUTIIII OUTPTCIIII XMITIIIIII ENDIIIIIIII
COMMON BLOCKS
BASCONIIII 24 CONCONIIII 12
ENTRY POINTS
SETKORDIIII SETWBOOIIII SETUNITIIII SETINTGIIII MAKUNITIIII

362 SITEPIII IIIIIIIII
PROGRAM LENGTH
SITEPIIIII 74
EXTERNALS
SINIIIIIII COSIIIIIIII XMITIIIIII ENDIIIIIIII
COMMON BLOCKS
CONCONIIII 12
ENTRY POINTS
SITEPIIIII

363 SONICII IIIIIIIII
PROGRAM LENGTH
SONICIIIIII 109
EXTERNALS
FDIVIIIIII ENDIIIIIIII
COMMON BLOCKS
BASCONIIII 24 CONCONIIII 12
ENTRY POINTS
SONICIIIIII

364 STALEII 11/03/72
PROGRAM LENGTH
STALEIIIIII 279
EXTERNALS
COSIIIIII SINIIIIIIII XMAIIIIIIII AZFIIIIIIII ELFIIIIIIII ACGERRIIII UNITVIIIIII DOTIIIIIIII CROSSIIIIII XMITIIIIIIII
ENTRY POINTS
COMMON BLOCKS

```



```

BASCON: 24 CONCON: 12 STACON: 203
ENTRY POINTS
STALE:

365 STOUT:
PROGRAM LENGTH
STOUT: 568
EXTERNALS
XMIT: OUTSET: OUTCOL: STREP: STALE: END:
COMMON BLOCKS
BASCON: 24 CONCON: 12 STACON: 203
ENTRY POINTS
STOUT:

366 STREP: 11/03/72
PROGRAM LENGTH
STREP: 389
EXTERNALS
SORT: AZF: ELF: FDI: XMIT: SIN: COS: END:
ENTRY POINTS
STREP:

367 SUBHEAD:
PROGRAM LENGTH
SUBHEAD: 134
EXTERNALS
XMIT: MCHAR: OUTPTC: END:
COMMON BLOCKS
BASCON: 24
ENTRY POINTS
SUBHEAD:

368 SUBVEC:
PROGRAM LENGTH
SUBVEC: 27
EXTERNALS
END:
ENTRY POINTS
SUBVEC:

369 TITLER:
PROGRAM LENGTH
TITLER: 141
EXTERNALS
MCHAR: HEAD: OUTPTC: LSKIP: END:
COMMON BLOCKS
BASCON: 24
ENTRY POINTS
TITLER:

370 TITLIN:
PROGRAM LENGTH
TITLIN: 27

```


**PART 2.2 - LIST OF ROUTINES CALLING
A SPECIFIC SUBROUTINE**

SUBROUTINE	CALLED BY	SUBROUTINE	CALLED BY	SUBROUTINE	CALLED BY	SUBROUTINE	CALLED BY	SUBROUTINE	CALLED BY	SUBROUTINE	CALLED BY
DSTROYI	HYDRO11	HYDRO11	MULT11	MULT11	QCREAT1	QCREAT1	SLDANGL	SLDANGL	SLDANGL	SLDANGL	SLDANGL
DSXPNDI	HYDRO11	HYDRO11	MULT11	MULT11	QDSRED1	QDSRED1	SLNINT1	SLNINT1	SLNINT1	SLNINT1	SLNINT1
DTIMEF1	HYDRO11	HYDRO11	NEXT11	NEXT11	QDSRYT1	QDSRYT1	SLNINTM	SLNINTM	SLNINTM	SLNINTM	SLNINTM
DTNEPI1	INDEX11	INDEX11	NLOKAL1	NLOKAL1	QGRHOR1	QGRHOR1	SOLCYC1	SOLCYC1	SOLCYC1	SOLCYC1	SOLCYC1
DTNEQI1	INDEX11	INDEX11	NLOKSI1	NLOKSI1	QGRHOR1	QGRHOR1	SOLORH1	SOLORH1	SOLORH1	SOLORH1	SOLORH1
DUSCAT1	INDEX11	INDEX11	NLOKFL1	NLOKFL1	QGRHOR1	QGRHOR1	SOLVE11	SOLVE11	SOLVE11	SOLVE11	SOLVE11
DUSTINI	INDEX11	INDEX11	NOISE11	NOISE11	QGRHOR1	QGRHOR1	SOLVX11	SOLVX11	SOLVX11	SOLVX11	SOLVX11
DUSTUPI	INITI11	INITI11	NSOLVE1	NSOLVE1	QGRHOR1	QGRHOR1	SOLZEN1	SOLZEN1	SOLZEN1	SOLZEN1	SOLZEN1
DYNPLOT	INITI11	INITI11	OFFSET1	OFFSET1	QGRHOR1	QGRHOR1	SONIC11	SONIC11	SONIC11	SONIC11	SONIC11
ECRD111	INITI11	INITI11	OLDATA1	OLDATA1	QGRHOR1	QGRHOR1	SPCMINI	SPCMINI	SPCMINI	SPCMINI	SPCMINI
EDGE111	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SPECULAR	SPECULAR	SPECULAR	SPECULAR	SPECULAR
ELDENSI	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SPECDOI	SPECDOI	SPECDOI	SPECDOI	SPECDOI
ELF1111	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SPLTGAT	SPLTGAT	SPLTGAT	SPLTGAT	SPLTGAT
ENECHK1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SPLTGT1	SPLTGT1	SPLTGT1	SPLTGT1	SPLTGT1
ENLAIR1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	STALE11	STALE11	STALE11	STALE11	STALE11
ENLMTL1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	STATUS1	STATUS1	STATUS1	STATUS1	STATUS1
FORATI1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	STOH111	STOH111	STOH111	STOH111	STOH111
ETH2RAD	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	STOPRUN	STOPRUN	STOPRUN	STOPRUN	STOPRUN
EULANG1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	STOUT11	STOUT11	STOUT11	STOUT11	STOUT11
EUXFIT1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	STRUCT1	STRUCT1	STRUCT1	STRUCT1	STRUCT1
EVPROCI	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	STRIP11	STRIP11	STRIP11	STRIP11	STRIP11
EXPINT1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	STRIF11	STRIF11	STRIF11	STRIF11	STRIF11
EXTENT1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUBHEAD	SUBHEAD	SUBHEAD	SUBHEAD	SUBHEAD
EXTFBI1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUBVEC1	SUBVEC1	SUBVEC1	SUBVEC1	SUBVEC1
EXTX111	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUB1011	SUB1011	SUB1011	SUB1011	SUB1011
EYES111	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUB1111	SUB1111	SUB1111	SUB1111	SUB1111
EPIT111	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUB1211	SUB1211	SUB1211	SUB1211	SUB1211
FRAB111	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUB1311	SUB1311	SUB1311	SUB1311	SUB1311
FRCLTRI	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUB1411	SUB1411	SUB1411	SUB1411	SUB1411
FROUT11	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUB1511	SUB1511	SUB1511	SUB1511	SUB1511
FFLODI1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR1011	SUR1011	SUR1011	SUR1011	SUR1011
FILTER1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR1111	SUR1111	SUR1111	SUR1111	SUR1111
FITTER1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR1211	SUR1211	SUR1211	SUR1211	SUR1211
FRVOLI1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR1311	SUR1311	SUR1311	SUR1311	SUR1311
FUZNCCI	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR1411	SUR1411	SUR1411	SUR1411	SUR1411
FZET111	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR1511	SUR1511	SUR1511	SUR1511	SUR1511
GENORBI	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR1611	SUR1611	SUR1611	SUR1611	SUR1611
GEOQUAI	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR1711	SUR1711	SUR1711	SUR1711	SUR1711
GETMAPI	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR1811	SUR1811	SUR1811	SUR1811	SUR1811
GOA1111	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR1911	SUR1911	SUR1911	SUR1911	SUR1911
GRADNEI	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR2011	SUR2011	SUR2011	SUR2011	SUR2011
GRAV111	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR2111	SUR2111	SUR2111	SUR2111	SUR2111
GROSET1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR2211	SUR2211	SUR2211	SUR2211	SUR2211
GRIDOUNI	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR2311	SUR2311	SUR2311	SUR2311	SUR2311
GRIDUPT	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR2411	SUR2411	SUR2411	SUR2411	SUR2411
GRVCEI1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR2511	SUR2511	SUR2511	SUR2511	SUR2511
MDPART1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR2611	SUR2611	SUR2611	SUR2611	SUR2611
HEAD111	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR2711	SUR2711	SUR2711	SUR2711	SUR2711
MFETCH1	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR2811	SUR2811	SUR2811	SUR2811	SUR2811
MTBUR11	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR2911	SUR2911	SUR2911	SUR2911	SUR2911
MPCHEMI	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR3011	SUR3011	SUR3011	SUR3011	SUR3011
MTOS111	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR3111	SUR3111	SUR3111	SUR3111	SUR3111
MYDMKGI	INITI11	INITI11	OPR111	OPR111	QGRHOR1	QGRHOR1	SUR3211	SUR3211	SUR3211	SUR3211	SUR3211

[illegible]

*SUBROUTINE	CALLED BY	SUBROUTINE	CALLED BY	SUBROUTINE	CALLED BY	SUBROUTINE	CALLED BY	SUBROUTINE	CALLED BY	SUBROUTINE	CALLED BY	SUBROUTINE
	GINITI		MODEL		PHCONSR		PHCONSR		PHCONSR		PHCONSR	
	RADMRG		NSOLVE		PHIMPI		PHIMPI		PHIMPI		PHIMPI	
	RACRAN		PREDLOC		POINTSI		POINTSI		POINTSI		POINTSI	
	SEARCHI		TRACKIN		SPICULAR		SPICULAR		SPICULAR		SPICULAR	
	TRACKI		XFORMI		STRUCTUR		STRUCTUR		STRUCTUR		STRUCTUR	
LOC2I	TRACKI				UPDATEI		UPDATEI		UPDATEI		UPDATEI	
	PUTORQ	MATNVRT	NSOLVE	MLTPATH	REFLSI		REFLSI		REFLSI		REFLSI	
LOSONI	WOPART	MATRANS	TRACKIN	MLTSPLT	TARGMTS		TARGMTS		TARGMTS		TARGMTS	
LSKIP	MFADII	MATSUBI	KALMANI	MNOPLSI	TARGMTS		TARGMTS		TARGMTS		TARGMTS	
	TITLERI		PREDLOC	MNOPLSM								
LSLNTH			KALMANI	MNOPLSI								
	HURSTI	MCHARCT	TRACKI	MODEL	TARGSI		TARGSI		TARGSI		TARGSI	
	CHEMOD		FRONTI									
	CHEMOT		MCHARCT									
	HIRUPH		PLREAVI									
	HYDMRG		PREDATA									
	HYDROH		GREPHOR									
	IGRANDI		SETPLOT									
	PLTNII		SURHEAD									
	POINTS		TITLERI									
	RADMODS											
	REFLSI	MCHARCT	DYNPLOT									
	REFLSI		PLTNII									
	SEARCHI	POATEI	DATEFI									
	TARGHVS		PLTNII									
	TRACKI	WEASERR	SEARCHI									
	TRACKIN		TRACKIN									
	VERIFYI		VERIFYI									
PAGFI	ATKGENI											
WAKUNIT	HEADII	MIXERI	ATKGENI									
PATADD	KALMANI		HURSTI									
	TIMPLRI		CHEMOD									
PATDIAG	CLINTI		CLINTI									
	DELARSI		DELARSI									
	DUSCUI		DUSCUI									
PATFLIP	JACOBI		DUSTUPI									
	ADVANCE		ELDENSI									
	TRACKI		FRASII									
	TRACKIN		HYDMRG									
PATINVI	TRACKIN		HYDROH									
	MATNVRT		HYDROH									
	ADVANCE		INTPRII									
MATMULT	HYDROH		MLTPATH									
	KALMANI		MODEL									
			NOISEI									

NEXTNL

2-79

2-81

[illegible]

2-83

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**PART 2.3 - LIST OF ROUTINES CONTAINING
A SPECIFIC COMMON**

2-85

COMMON BLOCK WITH LENGTH	CALLED BY	COMMON BLOCK WITH LENGTH	CALLED BY	COMMON BLOCK WITH LENGTH	CALLED BY
2 ALTOONI 119	TARGMIS 113 TARGSI 113 TRACKII 115 TRACKIN 115 TUMBLRI 130 UPDATEI 115 VERIFIY 115 WHLOI 115 WHEREII 113 WIPOUTI 91 WOROIII 134 WOGIIII 134 WOGPIII 134 WONIIII 124 WONXIII 202 WOXIIII 113 XBETALI 113 XTHRSMS	7 BASCONI 24	GROSETI HEATCHI IONOSUI PHOTODI SOLCYCI SOLZENI SPCMINI SRMASSI ALTFIII CHEKFI COUNOUT DYNPLOT GRAVIII HEADIII INIIII LSKPIII OLOADAI OUTCOLI ROSCOEI SETKORD SONICII STALEII STOUTII SUBHEAD TITLRI	DUSTUPI ELDENSI EVPROCI EXTENTI EXTAIII EXTAIII FRASHII FRCLTRI FROUTII FRLOIII FLTRI FUZINCI GOAIII GROSETI GRIDONI GRIDUPI HIDUSII HYDMRGI HYDROII HYDROGI IGRAADI INTRPI INVTYI LAUNCHI MAGFII MEASERR MLTPATH MLTSPIT MNOPLSI MNOPLSI MNOPLSI MODELII MODELII MODLONI MOVFR2I MULTOR MULTOR NOISEII OFFSETI OUTLIST OUTRNI PEDEPI PGROUPI PHCONSR PHIMPI PHOTODI PHOTORI PLKINKI PLTFIRI PLTNI PMASFI POINTS POSTLIST	
3 ARAYS 1600	ATMOSII IONOSUI SPCMINI	8 BASICS 5	ADVANCE AMRGNII AMPREFI ATKGENI ATMOSII BETAGII RFELOI RIASII BOUNCEI RTNEWII RTUPDI RURSTII RURSTII CHEMDII CHEMDRI CHEMDII CLINTII CONJUGI DEDEPI DELABSI DEPINDI DISCRIM DUSCATI DUSTINI		
4 ATMOSNI 6	EQRATII SPCMINI SPECOP				
5 ATMOSTI 15	CHEMDII CHEMDII DTNEPI DTNEPI EQRATII INITALI PHOTODI SPECOP SPECOP				
6 ATMOUPI 21	ATMOSII ATMOSGI CHEMDII CHEMDRI ELDENSI				

COMMON BLOCK WITH LENGTH	CALLED BY	COMMON BLOCK WITH LENGTH	CALLED BY	COMMON BLOCK WITH LENGTH	CALLED BY
POSSV11 PRELOC PROMPG1 PTPROPI GINITI1 RADARI1 RADMODS RADMRGI RADOUT1 RADLS11 RCSMOOL RDPROCI REFCO11 REFCO21 REFLSTN REFLST1 REFRCT1 REFLS11 REZONE1 RITF11 ROSCOE1 POSREAD SCHCK11 SEARCI1 SEARCI1 SEATH1 SLOANGL SLNINT1 SLNINTM SPCULAR SPLTGAT STOPRUN STRUCTUR STRIAG1 STREIF1 STREIF21 SUB1311 SUB1411 SUB3111 SUB9111 SYPEAKS TARGMSV TARGMTS TARGW1S TAGG11 TRACK11 TRACKIN TUNBLR1 UPDATE1 VERIFY1 WBLD111 WHERE11		9 BLANKC1 1985	ATMOSG1 BEDGE11 BLINE11 BOUNDY1 CHEMG11 CHXDEPI CHXSPC1 CONSPC1 DEPOT11 DEPOT11 GRIDON1 MIRURI1 MPCHEM1 HYDROG1 INDEX11 LEKSPC1 PCHEM11 PHEAT11 PINT111 PLINE11 PROMPG1 PROPTY1 REZONE1 TIMVARI	11 BLANKC3 6580	INDEX11 LEKSPC1 PCHEM11 PHEAT11 PINT111 PROMPG1 PROPTY1 REZONE1 TIMVARI
				12 BLANKC4 5200	BLINE11 CHXDEPI CHXSPC1 CONSPC1 DEPOT11 DEPOT11 MPCHEM1 LEKSPC1 PROMPG1
				13 CALCOMP 4	ALFABET PLTN111
				14 CELLS1 241	ATMOSG1 DELTIM1 ENECHE1 EVPRCC1 GRIDON1 HYDROG1 HYDROG1 MPCHEM1 REZONE1
		10 BLANKC2 804	BLINE11 BOUNDY1 CHEMG11 CHXDEPI CHXSPC1 CONSPC1 DEPOT11 DEPOT11 EVPRCC1 MIRURI1 MPCHEM1 HYDROG1	15 CELORG1 3	CHEMG11
				16 CHEMAN1 25	CHEMEF1 CHTIO11

COMMON BLOCK WITH LENGTH CALLED BY		COMMON BLOCK WITH LENGTH CALLED BY		COMMON BLOCK WITH LENGTH CALLED BY	
17	CHEMRI	17	CHEMRI	22	CONCONI
	ELDENS				
18	CHEMRI	19A	BLKCHM		
			RATEII		
19	CHEXEG	4	CHXDEP		
			PINTII		
20	CNSTNI	11	ATMOSG		
			BEDGET		
			RLTNEI		
			BLOCKH		
			BOUNDY		
			CHEMEF		
			CHEMGI		
			CHXLOS		
			DERISI		
			DELTIM		
			DEPOII		
			ENECHK		
			EVPROCI		
			GEOQUAI		
			GROSETI		
			GRIDONI		
			MODART		
			HYDROG		
			HYDROL		
			INDEXII		
			PCHEMI		
			PHEATI		
			PINTII		
			PLINEII		
			PROMPG		
			PROPTY		
			QUAGEOI		
			PEZONEI		
			SRMASSI		
			TIMVARI		
			XYZGEO		
21	CONBBI	50	CONSETI		
			HYDMRG		
			MODELII		
			MODELT		
			MOOLONI		
			OFFSETI		
			RADMRGI		

COMMON BLOCK WITH LENGTH CALLED BY		COMMON BLOCK WITH LENGTH CALLED BY	
22	CONCONI	12	ADVANCE
			ALTFI
			ASPECTI
			ATGENI
			BFIELDI
			BIASII
			RLSTIC
			BTNEMI
			RTUPDI
			RUPSTI
			CHEMDI
			CHEMRI
			CHEQTI
			CLUTINC
			CONJUGI
			CORTAN
			DEDEPI
			DEPLSI
			DISCRI
			DRCHR2
			DUSCATI
			DUSTINI
			DUSTUPI
			ELDENSE
			ETHRAD
			EULANGI
			EXTENTI
			FRABSI
			FRCLTRI
			FROUTII
			FFLDI
			FUJINC
			GENORBI
			GOALII
			GRAVII
			HEADII
			HTOSII
			HYDMRG
			INTRPI
			LAUNCHI
			MAGFI
			MLTPATH
			MLTSPLT
			MNOPLS
			MNOPLSM
			MNOPLSI
			MODELII

COMMON BLOCK WITH LENGTH CALLED BY	
MODELII	
MOOLONI	
MULTCAR	
NOISEII	
OFFSETI	
ORPPIII	
ORRTIM	
ORR2II	
PGROUPI	
PHOTOD	
PITFSM	
PHASSI	
POINTS	
POSTIST	
POSSVI	
GINITI	
RADMRGI	
RADIRAN	
RADISI	
RCSH00L	
REFCOI	
REFCO2	
REFWCT	
REFIIS	
ROSCOEI	
ROSCAD	
SEARCHI	
SEACHM	
SEKORD	
SITERI	
SLOANGL	
SONICI	
SPLIGAT	
STALEI	
STOMII	
STOUTII	
STRICTUR	
STRIFI	
SVEPEAKS	
TARGSI	
TRACKII	
TRACIN	
UPDATEI	
VERIFI	
WALDI	
WHEREII	
MOGLII	
MONI	
MONI	
XBETAI	

COMMON BLOCK WITH LENGTH CALLED BY		COMMON BLOCK WITH LENGTH CALLED BY		COMMON BLOCK WITH LENGTH CALLED BY	
23	CONCON2	2	ADVANCE ASPECT ATKGEN BFIELD BIAS BLSTIC BTNEW BTUPD BURST CHEM CHEMHI CHEMOT CIPHER CLUTING CONJUG CORTAN DEDEP DELAB DISCRIM DROPR2 DUSCAT DUSTIN DUSTUP ELDENS ETHRAD EXTENT FABRS FACLTR FROUT FFLD FUZINC GENOPR GOAL GTOS HYDRAG HYDRO INTRP LAUNCH MAGFI MLTPATH MLTSPL MNOPLS MNOPLSM MODEL MODEL1 MODLON MULTCAR NOISE OFFSET ORBP ORB2	23	PGROUP PHOTOD PLTRM PMASS PMASSF POINTS POSTIST POSSV GINITI RADMRG RADTRAN RADIS RCSMODL REFCO REFCO1 REFCO2 REFCT REFS ROSCOE ROSCOE1 ROSCOE2 SEARCH SEARCI SEARCI SUDANGL SULTAT STOM STRUCT STRIF SVPEAKS SVZGV TARGSI TACK TRACKIN UPDATE VERIFI WBLD WHERE WGL WON WON1 WON2 WON3 WON4 WON5 WON6 WON7 WON8 WON9 WON10 WON11 WON12 WON13 WON14 WON15 WON16 WON17 WON18 WON19 WON20 WON21 WON22 WON23 WON24 WON25 WON26 WON27 WON28 WON29 WON30 WON31 WON32 WON33 WON34 WON35 WON36 WON37 WON38 WON39 WON40 WON41 WON42 WON43 WON44 WON45 WON46 WON47 WON48 WON49 WON50 WON51 WON52 WON53 WON54 WON55 WON56 WON57 WON58 WON59 WON60 WON61 WON62 WON63 WON64 WON65 WON66 WON67 WON68 WON69 WON70 WON71 WON72 WON73 WON74 WON75 WON76 WON77 WON78 WON79 WON80 WON81 WON82 WON83 WON84 WON85 WON86 WON87 WON88 WON89 WON90 WON91 WON92 WON93 WON94 WON95 WON96 WON97 WON98 WON99 WON100 WON101 WON102 WON103 WON104 WON105 WON106 WON107 WON108 WON109 WON110 WON111 WON112 WON113 WON114 WON115 WON116 WON117 WON118 WON119 WON120 WON121 WON122 WON123 WON124 WON125 WON126 WON127 WON128 WON129 WON130 WON131 WON132 WON133 WON134 WON135 WON136 WON137 WON138 WON139 WON140 WON141 WON142 WON143 WON144 WON145 WON146 WON147 WON148 WON149 WON150 WON151 WON152 WON153 WON154 WON155 WON156 WON157 WON158 WON159 WON160 WON161 WON162 WON163 WON164 WON165 WON166 WON167 WON168 WON169 WON170 WON171 WON172 WON173 WON174 WON175 WON176 WON177 WON178 WON179 WON180 WON181 WON182 WON183 WON184 WON185 WON186 WON187 WON188 WON189 WON190 WON191 WON192 WON193 WON194 WON195 WON196 WON197 WON198 WON199 WON200 WON201 WON202 WON203 WON204 WON205 WON206 WON207 WON208 WON209 WON210 WON211 WON212 WON213 WON214 WON215 WON216 WON217 WON218 WON219 WON220 WON221 WON222 WON223 WON224 WON225 WON226 WON227 WON228 WON229 WON230 WON231 WON232 WON233 WON234 WON235 WON236 WON237 WON238 WON239 WON240 WON241 WON242 WON243 WON244 WON245 WON246 WON247 WON248 WON249 WON250 WON251 WON252 WON253 WON254 WON255 WON256 WON257 WON258 WON259 WON260 WON261 WON262 WON263 WON264 WON265 WON266 WON267 WON268 WON269 WON270 WON271 WON272 WON273 WON274 WON275 WON276 WON277 WON278 WON279 WON280 WON281 WON282 WON283 WON284 WON285 WON286 WON287 WON288 WON289 WON290 WON291 WON292 WON293 WON294 WON295 WON296 WON297 WON298 WON299 WON300 WON301 WON302 WON303 WON304 WON305 WON306 WON307 WON308 WON309 WON310 WON311 WON312 WON313 WON314 WON315 WON316 WON317 WON318 WON319 WON320 WON321 WON322 WON323 WON324 WON325 WON326 WON327 WON328 WON329 WON330 WON331 WON332 WON333 WON334 WON335 WON336 WON337 WON338 WON339 WON340 WON341 WON342 WON343 WON344 WON345 WON346 WON347 WON348 WON349 WON350 WON351 WON352 WON353 WON354 WON355 WON356 WON357 WON358 WON359 WON360 WON361 WON362 WON363 WON364 WON365 WON366 WON367 WON368 WON369 WON370 WON371 WON372 WON373 WON374 WON375 WON376 WON377 WON378 WON379 WON380 WON381 WON382 WON383 WON384 WON385 WON386 WON387 WON388 WON389 WON390 WON391 WON392 WON393 WON394 WON395 WON396 WON397 WON398 WON399 WON400 WON401 WON402 WON403 WON404 WON405 WON406 WON407 WON408 WON409 WON410 WON411 WON412 WON413 WON414 WON415 WON416 WON417 WON418 WON419 WON420 WON421 WON422 WON423 WON424 WON425 WON426 WON427 WON428 WON429 WON430 WON431 WON432 WON433 WON434 WON435 WON436 WON437 WON438 WON439 WON440 WON441 WON442 WON443 WON444 WON445 WON446 WON447 WON448 WON449 WON450 WON451 WON452 WON453 WON454 WON455 WON456 WON457 WON458 WON459 WON460 WON461 WON462 WON463 WON464 WON465 WON466 WON467 WON468 WON469 WON470 WON471 WON472 WON473 WON474 WON475 WON476 WON477 WON478 WON479 WON480 WON481 WON482 WON483 WON484 WON485 WON486 WON487 WON488 WON489 WON490 WON491 WON492 WON493 WON494 WON495 WON496 WON497 WON498 WON499 WON500 WON501 WON502 WON503 WON504 WON505 WON506 WON507 WON508 WON509 WON510 WON511 WON512 WON513 WON514 WON515 WON516 WON517 WON518 WON519 WON520 WON521 WON522 WON523 WON524 WON525 WON526 WON527 WON528 WON529 WON530 WON531 WON532 WON533 WON534 WON535 WON536 WON537 WON538 WON539 WON540 WON541 WON542 WON543 WON544 WON545 WON546 WON547 WON548 WON549 WON550 WON551 WON552 WON553 WON554 WON555 WON556 WON557 WON558 WON559 WON560 WON561 WON562 WON563 WON564 WON565 WON566 WON567 WON568 WON569 WON570 WON571 WON572 WON573 WON574 WON575 WON576 WON577 WON578 WON579 WON580 WON581 WON582 WON583 WON584 WON585 WON586 WON587 WON588 WON589 WON590 WON591 WON592 WON593 WON594 WON595 WON596 WON597 WON598 WON599 WON600 WON601 WON602 WON603 WON604 WON605 WON606 WON607 WON608 WON609 WON610 WON611 WON612 WON613 WON614 WON615 WON616 WON617 WON618 WON619 WON620 WON621 WON622 WON623 WON624 WON625 WON626 WON627 WON628 WON629 WON630 WON631 WON632 WON633 WON634 WON635 WON636 WON637 WON638 WON639 WON640 WON641 WON642 WON643 WON644 WON645 WON646 WON647 WON648 WON649 WON650 WON651 WON652 WON653 WON654 WON655 WON656 WON657 WON658 WON659 WON660 WON661 WON662 WON663 WON664 WON665 WON666 WON667 WON668 WON669 WON670 WON671 WON672 WON673 WON674 WON675 WON676 WON677 WON678 WON679 WON680 WON681 WON682 WON683 WON684 WON685 WON686 WON687 WON688 WON689 WON690 WON691 WON692 WON693 WON694 WON695 WON696 WON697 WON698 WON699 WON700 WON701 WON702 WON703 WON704 WON705 WON706 WON707 WON708 WON709 WON710 WON711 WON712 WON713 WON714 WON715 WON716 WON717 WON718 WON719 WON720 WON721 WON722 WON723 WON724 WON725 WON726 WON727 WON728 WON729 WON730 WON731 WON732 WON733 WON734 WON735 WON736 WON737 WON738 WON739 WON740 WON741 WON742 WON743 WON744 WON745 WON746 WON747 WON748 WON749 WON750 WON751 WON752 WON753 WON754 WON755 WON756 WON757 WON758 WON759 WON760 WON761 WON762 WON763 WON764 WON765 WON766 WON767 WON768 WON769 WON770 WON771 WON772 WON773 WON774 WON775 WON776 WON777 WON778 WON779 WON780 WON781 WON782 WON783 WON784 WON785 WON786 WON787 WON788 WON789 WON790 WON791 WON792 WON793 WON794 WON795 WON796 WON797 WON798 WON799 WON800 WON801 WON802 WON803 WON804 WON805 WON806 WON807 WON808 WON809 WON810 WON811 WON812 WON813 WON814 WON815 WON816 WON817 WON818 WON819 WON820 WON821 WON822 WON823 WON824 WON825 WON826 WON827 WON828 WON829 WON830 WON831 WON832 WON833 WON834 WON835 WON836 WON837 WON838 WON839 WON840 WON841 WON842 WON843 WON844 WON845 WON846 WON847 WON848 WON849 WON850 WON851 WON852 WON853 WON854 WON855 WON856 WON857 WON858 WON859 WON860 WON861 WON862 WON863 WON864 WON865 WON866 WON867 WON868 WON869 WON870 WON871 WON872 WON873 WON874 WON875 WON876 WON877 WON878 WON879 WON880 WON881 WON882 WON883 WON884 WON885 WON886 WON887 WON888 WON889 WON890 WON891 WON892 WON893 WON894 WON895 WON896 WON897 WON898 WON899 WON900 WON901 WON902 WON903 WON904 WON905 WON906 WON907 WON908 WON909 WON910 WON911 WON912 WON913 WON914 WON915 WON916 WON917 WON918 WON919 WON920 WON921 WON922 WON923 WON924 WON925 WON926 WON927 WON928 WON929 WON930 WON931 WON932 WON933 WON934 WON935 WON936 WON937 WON938 WON939 WON940 WON941 WON942 WON943 WON944 WON945 WON946 WON947 WON948 WON949 WON950 WON951 WON952 WON953 WON954 WON955 WON956 WON957 WON958 WON959 WON960 WON961 WON962 WON963 WON964 WON965 WON966 WON967 WON968 WON969 WON970 WON971 WON972 WON973 WON974 WON975 WON976 WON977 WON978 WON979 WON980 WON981 WON982 WON983 WON984 WON985 WON986 WON987 WON988 WON989 WON990 WON991 WON992 WON993 WON994 WON995 WON996 WON997 WON998 WON999 WON1000 WON1001 WON1002 WON1003 WON1004 WON1005 WON1006 WON1007 WON1008 WON1009 WON1010 WON1011 WON1012 WON1013 WON1014 WON1015 WON1016 WON1017 WON1018 WON1019 WON1020 WON1021 WON1022 WON1023 WON1024 WON1025 WON1026 WON1027 WON1028 WON1029 WON1030 WON1031 WON1032 WON1033 WON1034 WON1035 WON1036 WON1037 WON1038 WON1039 WON1040 WON1041 WON1042 WON1043 WON1044 WON1045 WON1046 WON1047 WON1048 WON1049 WON1050 WON1051 WON1052 WON1053 WON1054 WON1055 WON1056 WON1057 WON1058 WON1059 WON1060 WON1061 WON1062 WON1063 WON1064 WON1065 WON1066 WON1067 WON1068 WON1069 WON1070 WON1071 WON1072 WON1073 WON1074 WON1075 WON1076 WON1077 WON1078 WON1079 WON1080 WON1081 WON1082 WON1083 WON1084 WON1085 WON1086 WON1087 WON1088 WON1089 WON1090 WON1091 WON1092 WON1093 WON1094 WON1095 WON1096 WON1097 WON1098 WON1099 WON1100 WON1101 WON1102 WON1103 WON1104 WON1105 WON1106 WON1107 WON1108 WON1109 WON1110 WON1111 WON1112 WON1113 WON1114 WON1115 WON1116 WON1117 WON1118 WON1119 WON1120 WON1121 WON1122 WON1123 WON1124 WON1125 WON1126 WON1127 WON1128 WON1129 WON1130 WON1131 WON1132 WON1133 WON1134 WON1135 WON1136 WON1137 WON1138 WON1139 WON1140 WON1141 WON1142 WON1143 WON1144 WON1145 WON1146 WON1147 WON1148 WON1149 WON1150 WON1151 WON1152 WON1153 WON1154 WON1155 WON1156 WON1157 WON1158 WON1159 WON1160 WON1161 WON1162 WON1163 WON1164 WON1165 WON1166 WON1167 WON1168 WON1169 WON1170 WON1171 WON1172 WON1173 WON1174 WON1175 WON1176 WON1177 WON1178 WON1179 WON1180 WON1181 WON1182 WON1183 WON1184 WON1185 WON1186 WON1187 WON1188 WON1189 WON1190 WON1191 WON1192 WON1193 WON1194 WON1195 WON1196 WON1197 WON1198 WON1199 WON1200 WON1201 WON1202 WON1203 WON1204 WON1205 WON1206 WON1207 WON1208 WON1209 WON1210 WON1211 WON1212 WON1213 WON1214 WON1215 WON1216 WON1217 WON1218 WON1219 WON1220 WON1221 WON1222 WON1223 WON1224 WON1225 WON1226 WON1227 WON1228 WON1229 WON1230 WON1231 WON1232 WON1233 WON1234 WON1235 WON1236 WON1237 WON1238 WON1239 WON1240 WON1241 WON1242 WON1243 WON1244 WON1245 WON1246 WON1247 WON1248 WON1249 WON1250 WON1251 WON1252 WON1253 WON1254 WON1255 WON1256 WON1257 WON1258 WON1259 WON1260 WON1261 WON1262 WON1263 WON1264 WON1265 WON1266 WON1267 WON1268 WON1269 WON1270 WON1271 WON1272 WON1273 WON1274 WON1275 WON1276 WON1277 WON1278 WON1279 WON1280 WON1281 WON1282 WON1283 WON1284 WON1285 WON1286 WON1287 WON1288 WON1289 WON1290 WON1291 WON1292 WON1293 WON1294 WON1295 WON1296 WON1297 WON1298 WON1299 WON1300 WON1301 WON1302 WON1303 WON1304 WON1305 WON1306 WON1307 WON1308 WON1309 WON1310 WON1311 WON1312 WON1313 WON1314 WON1315 WON1316 WON1317 WON1318 WON1319 WON1320 WON1321 WON1322 WON1323 WON1324 WON1325 WON1326 WON1327 WON1328 WON1329 WON1330 WON1331 WON1332 WON1333 WON1334 WON1335 WON1336 WON1337 WON1338 WON1339 WON1340 WON1341 WON1342 WON1343 WON1344 WON1345 WON1346 WON1347 WON1348 WON1349 WON1350 WON1351 WON1352 WON1353 WON1354 WON1355 WON1356 WON1357 WON1358 WON1359 WON1360 WON1361 WON1362 WON1363 WON1364 WON1365 WON1366 WON1367 WON1368 WON1369 WON1370 WON1371 WON1372 WON1373 WON1374 WON1375 WON1376 WON1377 WON1378 WON1379 WON1380 WON1381 WON1382 WON1383 WON1384 WON1385 WON1386 WON1387 WON1388 WON1389 WON1390 WON1391 WON1392 WON1393 WON1394 WON1395 WON1396 WON1397 WON1398 WON1399 WON1400 WON1401 WON1402 WON1403 WON1404 WON1405 WON1406 WON1407 WON1408 WON1409 WON1410 WON1411 WON1412 WON1413 WON1414 WON1415 WON1416 WON1417 WON1418 WON1419 WON1420 WON1421 WON1422 WON1423 WON1424 WON1425 WON1426 WON1427 WON1428 WON1429 WON1430 WON1431 WON1432 WON1433 WON1434 WON1435 WON1436 WON1437 WON1438 WON1439 WON1440 WON1441 WON1442 WON1443 WON1444 WON1445 WON1446 WON1447 WON1448 WON1449 WON1450 WON1451 WON1452 WON1453 WON1454 WON1455 WON1456 WON1457 WON1458 WON1459 WON1460 WON1461 WON1462 WON1463 WON1464 WON1465 WON1466 WON1467 WON1468 WON1469 WON1470 WON1471 WON1472 WON1473 WON1474 WON1475 WON1476 WON1477 WON1478 WON1479 WON1480 WON1481 WON1482 WON1483 WON1484 WON1485 WON1486 WON1487 WON1488 WON1489 WON1490 WON1491 WON1492 WON1493 WON1494 WON1495 WON1496 WON1497 WON1498 WON1499 WON1500 WON1501 WON1502 WON1503 WON1504 WON1505 WON1506 WON1507 WON1508 WON1509 WON1510 WON1511 WON1512 WON1513 WON1514 WON1515 WON1516 WON1517 WON1518 WON1519 WON1520 WON1521 WON1522 WON1523 WON1524 WON1525 WON1526 WON1527 WON1528 WON1529 WON1530 WON1531 WON1532 WON1533 WON1534 WON1535 WON1536 WON1537 WON1538 WON1539 WON1540 WON1541 WON1542 WON1543 WON1544 WON1545 WON1546 WON1547 WON1548 WON1549 WON1550 WON1551 WON1552 WON1553 WON1554 WON1555 WON1556 WON1557 WON1558 WON1559 WON1560 WON1561 WON1562 WON1563 WON1564 WON1565 WON1566 WON1567 WON1568 WON1569 WON1570 WON1571 WON1572 WON1573 WON1574 WON1575 WON1576 WON1577 WON1578 WON1579 WON1580 WON1581 WON1582 WON1583 WON1584 WON1585 WON1586 WON1587 WON1588 WON1589 WON1590 WON1591 WON1592 WON1593 WON1594 WON1595 WON1596 WON1597 WON1598 WON1599 WON1600 WON1601 WON1602 WON1603 WON1604 WON1605 WON1606 WON1607 WON1608 WON1609 WON1610 WON1611 WON1612 WON1613 WON1614 WON1615

COMMON BLOCK WITH LENGTH CALLED BY		COMMON BLOCK WITH LENGTH CALLED BY	
57	PRFLAGI 1	64	STACONI 203
	BLINEII INDEXII		ELDENSI STALEII STOUTII
58	PROPTY 7	65	STRIIII 300
	RLINEII DEBRISI MOVFBII PROMPGI PROPTYI		POTSOLI STRIAGI
59	PAPREGI 5	66	TEMPIII 418
	ATHOSGI REDGEII RLINEII ROUNDYI CHEMGI EVPROCI GROSETI GRIDONI MIBURII HYDROGI INDEXII PHEATII PINTI PLHEAVI PLINEII PROMPGI PROPTYI REZONEI TIMVARI		BEDGEII PCHEMII PHEATII PLINEII PROMPGI
60	REZONNI 222	67	TESTRII 1
	EVPROCI GROSETI GRIDONI HYDROGI REZONEI		ROOTII
61	SPECIII 56	68	TIMEIII 8
	CHEMHRI EOLAIRI EOLMTLI		ATMOSII SOLORRI SOLZENI ZITOUTI
62	SPECEFI 36	69	WEDEPOI 15
	CHEMEFI CHEMGI CHMIONI		BLINEII CHXDEPI CHXSPCI CONSPCI DEBRISI DEPOIII DEPOWEI LEKSPCI
63	SPECQII 12	70	WRATEII 159
	CHEMGI CHEMII CHEMIII		CHMEDII DRATEII DTNEPII DTNEGII EQRATII INITALI SPECDPI SPECQII
	CHEMII	71	ZMCHEXI 1
	CHEMII		ATMOSII IONOSUI SPCMINI

**PART 2.4 - LIST OF ROUTINES CALLED BY
A SPECIFIC SUBROUTINE**

RITEV:	PONT:	SCHCK:	SEPA:	SIN:	SOLCYC:	SOLORR:	SOLVE:	SOLZEN:	SPCMIN:
SPECOP:	SPECOP:	SORT:	STATUS:	STOP:	STAIPI:	SUBVEC:	SZYGY:	TAN:	TRPLIN:
UNITV:	VECLIN:	VECSUM:	WORUM:	WIPOUT:	WOND:	WOGP:	WOGP:	WOGP:	WOND:
WONP:	WONP:	WONP:	WONP:	XBETA:	XMAG:	XMIT:	ZTTOUT:		
<p>ANLYT2: LENGTH OF ALL ROUTINES 123 SORT: </p> <p>ANLYT2: END: EXP: </p>									
<p>ASPECT: LENGTH OF ALL ROUTINES 163</p> <p>ASPECT: END: SORT: </p>									
<p>ATKGEN: LENGTH OF ALL ROUTINES 17040</p> <p>ATKGEN: END: EXP: </p>									
ATKGEN:	ATKGEN:	ACGOER:	ACOS:	ALOG:	ALOG:	ALOG:	ATANI:	ATAN2:	ATMOS:
ATMOS:	ATMOS:	BLSTSET:	BSTANG:	COS:	CREATL:	CROSS:	CROSS:	DOT:	DROR2:
INWRL:	INWRL:	DUMPI:	ECR:	END:	ENECR:	ETHRAD:	EULANG:	EAT:	EXP:
QERROR:	QERROR:	GENOR:	GOTOALT:	GRAV:	GRUSET:	GRUSET:	GRUSET:	INWRL:	INWRL:
ZTTOUT:	ZTTOUT:	JULIAN:	JULIAN:	KALLER:	LOCKOS:	LOCKOS:	MAGIT:	MATTIN:	MATTIN:
		MIXER:	NEAT:	NLOKOS:	NSOLVE:	NSOLVE:	ORRP:	ORRP:	ORRP:
		OCREAS:	OCREAS:	ODRAG:	ODRAG:	ODRAG:	ODSTRY:	ODSTRY:	ODSTRY:
		QDBLK:	QDBLK:	QDBLK:	QDBLK:	QDBLK:	QDBLK:	QDBLK:	QDBLK:
		RDRUM:	RDRUM:	RDRUM:	RDRUM:	RDRUM:	RDRUM:	RDRUM:	RDRUM:
		SPCMIN:	SPCMIN:	SPCMIN:	SPCMIN:	SPCMIN:	SPCMIN:	SPCMIN:	SPCMIN:
		SOLZEN:	SOLZEN:	SOLZEN:	SOLZEN:	SOLZEN:	SOLZEN:	SOLZEN:	SOLZEN:
		VECSUM:	VECSUM:	VECSUM:	VECSUM:	VECSUM:	VECSUM:	VECSUM:	VECSUM:
		WONP:	WONP:	WONP:	WONP:	WONP:	WONP:	WONP:	WONP:
		XMIT:	XMIT:	XMIT:	XMIT:	XMIT:	XMIT:	XMIT:	XMIT:
		ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:
<p>ATMOS: LENGTH OF ALL ROUTINES 7145</p> <p>ATMOS: END: EXP: </p>									
ATMOS:	ATMOS:	ACGOER:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:
INWRL:	INWRL:	JULIAN:	KALLER:	KALLER:	KALLER:	KALLER:	KALLER:	KALLER:	KALLER:
QERROR:	QERROR:	RBAREX:	SIN:	SIN:	SIN:	SIN:	SIN:	SIN:	SIN:
ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:
<p>ATMOS: LENGTH OF ALL ROUTINES 7691</p> <p>ATMOS: END: EXP: </p>									
ATMOS:	ATMOS:	ACGOER:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:
EXP:	EXP:	IONOSU:	IONOSU:	IONOSU:	IONOSU:	IONOSU:	IONOSU:	IONOSU:	IONOSU:
QFIELD:	QFIELD:	QERROR:	RATE:	RATE:	RATE:	RATE:	RATE:	RATE:	RATE:
SPCMIN:	SPCMIN:	SRMASS:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:
<p>ATMOS: LENGTH OF ALL ROUTINES 7186</p> <p>ATMOS: END: EXP: </p>									
ATMOS:	ATMOS:	ACGOER:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:
FITTER:	FITTER:	IONOSU:	JULIAN:	JULIAN:	JULIAN:	JULIAN:	JULIAN:	JULIAN:	JULIAN:
QFIELD:	QFIELD:	RATE:	RBAREX:	RBAREX:	RBAREX:	RBAREX:	RBAREX:	RBAREX:	RBAREX:
SORT:	SORT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:
<p>BEDGE: LENGTH OF ALL ROUTINES 284</p> <p>BEDGE: END: EXP: </p>									
BEDGE:	BEDGE:	ACGOER:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:
<p>BETA: LENGTH OF ALL ROUTINES 2355</p> <p>BETA: END: EXP: </p>									
BETA:	BETA:	ACGOER:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:	ALOG:
INWRL:	INWRL:	KALLER:	LOCKOS:	LOCKOS:	LOCKOS:	LOCKOS:	LOCKOS:	LOCKOS:	LOCKOS:
QDSPT:	QDSPT:	QERROR:	QFIELD:	QFIELD:	QFIELD:	QFIELD:	QFIELD:	QFIELD:	QFIELD:
RAAF:	RAAF:	RDRUM:	SIN:	SIN:	SIN:	SIN:	SIN:	SIN:	SIN:
<p>BFIELD: LENGTH OF ALL ROUTINES 670</p> <p>BFIELD: END: EXP: </p>									
BFIELD:	BFIELD:	ACOS:	ASIN:	ASIN:	ASIN:	ASIN:	ASIN:	ASIN:	ASIN:
		ATAN2:	COS:	COS:	COS:	COS:	COS:	COS:	COS:
		CROSS:	CROSS:	CROSS:	CROSS:	CROSS:	CROSS:	CROSS:	CROSS:
		DOT:	DOT:	DOT:	DOT:	DOT:	DOT:	DOT:	DOT:
		EAT:	EAT:	EAT:	EAT:	EAT:	EAT:	EAT:	EAT:
		EXP:	EXP:	EXP:	EXP:	EXP:	EXP:	EXP:	EXP:
		INWRL:	INWRL:	INWRL:	INWRL:	INWRL:	INWRL:	INWRL:	INWRL:
		QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:
		QFIELD:	QFIELD:	QFIELD:	QFIELD:	QFIELD:	QFIELD:	QFIELD:	QFIELD:
		SIN:	SIN:	SIN:	SIN:	SIN:	SIN:	SIN:	SIN:
		SPCMIN:	SPCMIN:	SPCMIN:	SPCMIN:	SPCMIN:	SPCMIN:	SPCMIN:	SPCMIN:
		TAN:	TAN:	TAN:	TAN:	TAN:	TAN:	TAN:	TAN:
		VECLIN:	VECLIN:	VECLIN:	VECLIN:	VECLIN:	VECLIN:	VECLIN:	VECLIN:
		WONP:	WONP:	WONP:	WONP:	WONP:	WONP:	WONP:	WONP:
		XMIT:	XMIT:	XMIT:	XMIT:	XMIT:	XMIT:	XMIT:	XMIT:
		ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:	ZTTOUT:

	INDWPL	KALLER	MCHAR	NLOKOS	OUTPTC	QERRR	QFIELD	QFLDST	QERRR	SIN
BIAS	LENGTH OF ALL ROUTINES	385	INDWRL	QERRR	KALLER	OUTPTC	NLOKOS	OUTPTC	QERRR	OFIELD
BLINE	LENGTH OF ALL ROUTINES	2544	ACOS	ACOS	ALOG	ALOG	ATMOS	BFIELD	CONJUG	COS
BLKCHP	LENGTH OF ALL ROUTINES	7	BLKCHW	END	BLKCHW	END	BLKCHW	END	BLKCHW	END
BLLSTIC	LENGTH OF ALL ROUTINES	9907	ALLSTIC	ALLSTIC	ALLSTIC	ALLSTIC	ALLSTIC	ALLSTIC	ALLSTIC	ALLSTIC
BORDER	LENGTH OF ALL ROUTINES	54	BORDER	END	BORDER	END	BORDER	END	BORDER	END
BOUNCE	LENGTH OF ALL ROUTINES	34869	BOUNCE	BOUNCE	BOUNCE	BOUNCE	BOUNCE	BOUNCE	BOUNCE	BOUNCE
BOUNDY	LENGTH OF ALL ROUTINES	98	BOUNDY	END	BOUNDY	END	BOUNDY	END	BOUNDY	END
BSTANG	LENGTH OF ALL ROUTINES	153	BSTANG	END	BSTANG	END	BSTANG	END	BSTANG	END

	ELI:111111	IOCHEK:1111	OUTPTC:1111	RATE:111111	PBAREX:1111	RDRUM:1111	RICATT:1111	PITEZ:1111	SECOND:1111	SORT:111111
CHENHRI	TEXT:111111	WDRUM:1111								
	LENGTH OF ALL ROUTINES	13305								
CHENHRI	11111111	ACGOER:1111	ALOG:111111	ALOG:111111	ALOG:111111	ATHOS:1111	COS:111111	OSADMP:1111	DSPADH:1111	DUMPI:1111
END:111111	EQLAT:1111	EQLMTL:1111	EXIT:111111	EXIT:111111	EXIT:111111	FITTER:1111	INDARL:1111	IOCHEK:1111	TONOSU:1111	JULIAN:1111
KALLER:1111	LOC:111111	LOCKDS:1111	MCHAR:1111	MCHAR:1111	MCHAR:1111	NLUKDS:1111	OUTPTC:1111	PHOTO:1111	GCASE:1111	QCREAT:1111
QGRAG:1111	QOSRED:1111	QOSRYT:1111	QOSTRY:1111	QOSTRY:1111	QOSTRY:1111	QFIELD:1111	QFLOST:1111	QGRCLK:1111	QGBLK:1111	QGRBAG:1111
SOLVE:1111	SOLZEN:1111	SPCMIN:1111	RATE:111111	RATE:111111	RATE:111111	RDRUM:1111	RITEF:1111	SINI:111111	SOLCYC:1111	SOLORB:1111
CHENQ:11	LENGTH OF ALL ROUTINES	300								
CHENQ:11	11111111	EXP:111111	RATE:111111	RATE:111111	RATE:111111	RBAREX:1111	SORT:111111			
CHMEDT:11	LENGTH OF ALL ROUTINES	12516								
CHMEDT:11	11111111	ACGOER:1111	ACOS:111111	ACOS:111111	ACOS:111111	ALOG:111111	ALOG:111111	ASINI:1111	ATMOS:1111	COS:111111
CREAT:1111	DEPIND:1111	DOT:111111	DSAPRU:1111	DSAPRU:1111	DSAPRU:1111	DSTROY:1111	DUMPI:1111	END:111111	END:111111	EXIT:111111
FOTV:1111	FITTER:1111	INDARL:1111	IOCHEK:1111	IOCHEK:1111	IOCHEK:1111	TONOSU:1111	JULIAN:1111	KALLER:1111	LOC:111111	LOCKDS:1111
LSLNT:1111	MCHAR:1111	NEXT:111111	NLUKDS:1111	NLUKDS:1111	NLUKDS:1111	PEDEP:1111	PHOTO:1111	PHASS:1111	POTROT:1111	POTDRI:1111
QCEASE:1111	QCREAT:1111	QGRBAG:1111	QOSRED:1111	QOSRED:1111	QOSRED:1111	QOSTRY:1111	QERROR:1111	QFIELD:1111	QFLOST:1111	QGRCLK:1111
QGRCLK:1111	QGRBAG:1111	QGRBAX:1111	QGTZWD:1111	QGTZWD:1111	QGTZWD:1111	QZBLK:1111	QERROR:1111	RATE:111111	RBAREX:1111	RDUM:1111
RITEF:1111	RITEZ:1111	SEPAR:1111	SINI:111111	SINI:111111	SINI:111111	SOLCYC:1111	SOLORB:1111	SOLVE:1111	SOLZEN:1111	SPCMIN:1111
SORT:111111	STOP:111111	SURVEC:1111	TRPLIN:1111	TRPLIN:1111	TRPLIN:1111	WDRUM:1111	WOG:111111	WONP:111111	WONP:111111	WXP:111111
WXP:111111	WXP:111111	WXP:111111	WXP:111111	WXP:111111	WXP:111111	WXP:111111	WXP:111111	WXP:111111	WXP:111111	WXP:111111
CHMION:11	LENGTH OF ALL ROUTINES	1319								
CHMION:11	11111111	ANLYT2:1111	END:111111	END:111111	END:111111	EXP:111111	EXP:111111	EXP:111111	EXP:111111	EXP:111111
CHOLSKI	LENGTH OF ALL ROUTINES	198								
CHOLSKI:11	11111111	SORT:111111								
CHXDEPI	LENGTH OF ALL ROUTINES	211								
CHXDEPI:11	11111111	END:111111	FZET:111111	FZET:111111	FZET:111111	SORT:111111				
CHXLOSI	LENGTH OF ALL ROUTINES	90								
CHXLOSI:11	11111111	END:111111								
CHXSPCI	LENGTH OF ALL ROUTINES	92								
CHXSPCI:11	11111111	END:111111	EXP:111111	EXP:111111	EXP:111111					
CIPHER:11	LENGTH OF ALL ROUTINES	1033								
CIPHER:11	11111111	END:111111	OUTPTC:1111	OUTPTC:1111	OUTPTC:1111	RBAREX:1111	ROOT:111111	SINI:111111	SORT:111111	
CLINT:11	LENGTH OF ALL ROUTINES	36257								
CLINT:11	11111111	ACGOER:1111	ACOS:111111	ACOS:111111	ACOS:111111	ALV:111111	ALV:111111	ALOG:111111	ALOG:111111	ASINI:1111
ATAN2:1111	ATMOS:1111	BFIELD:1111	CHEMHR:1111	CHEMHR:1111	CHEMHR:1111	CREAT:1111	CREAT:1111	CREAT:1111	CREAT:1111	CIPHER:1111
COMP2:1111	COMP3:1111	CONJUG:1111	COS:111111	COS:111111	COS:111111	DSTROY:1111	DSTROY:1111	DSTROY:1111	DSTROY:1111	CROSS:1111
DOT:111111	DRATE:1111	DSADMP:1111	EGRAT:1111	EGRAT:1111	EGRAT:1111	ETHRAD:1111	ETHRAD:1111	ETHRAD:1111	ETHRAD:1111	DUMPI:1111
END:111111	EQLAIR:1111	EQLMTL:1111	FITER:1111	FITER:1111	FITER:1111	GOAL:111111	GOAL:111111	GOAL:111111	GOAL:111111	EXTENT:1111
ELI:111111	E2:111111	FOV:111111	INSIDE:1111	INSIDE:1111	INSIDE:1111	IOCHEK:1111	IOCHEK:1111	IOCHEK:1111	IOCHEK:1111	EXTENT:1111
INDARL:1111	INITAL:1111	MCHAR:1111	MIXER:1111	MIXER:1111	MIXER:1111	NLUKDS:1111	NLUKDS:1111	NLUKDS:1111	NLUKDS:1111	EXTENT:1111
LSLNT:1111	MATMULT:1111	PHASS:1111	PREV:111111	PREV:111111	PREV:111111	PUTBOT:1111	PUTBOT:1111	PUTBOT:1111	PUTBOT:1111	EXTENT:1111
PHOTO:1111	PHASS:1111	PHASS:1111								ATAN:111111
										COLL:111111
										DEPIND:1111
										ELF:111111
										EXTENT:1111
										EXTENT:1111
										INDOR:1111
										LOCKDS:1111
										LOCAX:1111
										PHOTO:1111
										QORBAG:1111

DEDEP11	NLOKOS1111	OUTPTC1111	QERROR1111	QFIELD1111	QFLDST1111	QERROR1111	RAD2ETH111	RBAPEX1111	SIN111111	SORT111111
	XYZREQ1111									
	LENGTH OF ALL ROUTINES 14582									
	DEDEP1111	11111111	ACGDER1111	ACOS111111	ALOG111111	ALOG101111	ASIN111111	ATAN211111	ATWOS111111	BFIELD1111
	CONJUG1111	COS111111	CREATL1111	CROSS111111	CROSS111111	DEPIAD1111	DOT11111111	DSADMP1111	DSPWR111111	DUMP111111
	END111111	ETH2RAD111	EXIT111111	EXTF111111	EXTF111111	EL11111111	EP11111111	FOI11111111	FITTE111111	INDWR111111
	INDWR1111	IOCHEK1111	IONOSU1111	JULIAN1111	KALLER1111	LOC11111111	LOCKDS1111	LOC1AX1111	MCHAR111111	NFAT111111
	NLOKUS1111	OUTPTC1111	PHASS111111	PHASS111111	PROJ111111	PUDOM1111	QCEASE1111	QCEAT111111	QGBAG111111	QDSMED1111
	QDSRYT1111	QDSTRY1111	QERROR1111	QFIELD1111	QFLDST1111	GGCR111111	GGDLK111111	GGPRAG1111	GGPRAX1111	GINIT111111
	QERROR1111	RAD2ETH111	RATE111111	RAREX1111	RITEF111111	RITEL111111	RITEL111111	RITEL111111	SEPA111111	SIN111111
	SOLCYC1111	SOLORH1111	SOLVE111111	SOLZEN1111	SCMIN1111	SORT111111	STOP111111	SURVEC1111	TRPLIN1111	UNITV1111
	VECLIN1111	WORUM1111	WORD111111	WOG111111	WOG111111	WOND111111	WON111111	WOX111111	XMAG111111	XMIT111111
	ZTTOUT1111									
DELABS1	LENGTH OF ALL ROUTINES 32446									
	DELAB1111	11111111	ABSINC1111	ACGDER1111	ACOS111111	ALN11111111	ALOG111111	ALOG101111	ASIN111111	ATAN111111
	ATAN211111	ATWOS1111	REFIELD1111	CHEMO111111	CHEMR111111	CHVED111111	CIPHER1111	CIPHER1111	COLL111111	CONJUG1111
	COS111111	CREATL1111	CREATX1111	CROSS111111	CROSS111111	DEDEP111111	DEPIND1111	DOT11111111	DRATE111111	DSADMP1111
	DSPWR1111	DSTRY1111	DNEP111111	DINEQ111111	EXTF111111	ELDEN111111	EN11111111	EOLAIR1111	EOLMT111111	EGRAT111111
	ETH2RAD111	EXIT111111	EXP11111111	EXTF111111	EXTF111111	EL11111111	FDIV111111	FITTE111111	MFETCH1111	MTOS111111
	HYCPO1111	INDWR1111	IONOSU1111	INTAL111111	INSIDE1111	IOCHEK1111	IONOSU1111	JULIAN1111	NLOKUS1111	OUTPTC1111
	LOC111111	LOCKDS1111	LOC1AX1111	LSUNTH1111	LSUNTH1111	MCHAR111111	MIXER111111	NEXT111111	PUTDRN1111	QCEASE1111
	PECEP1111	PHOTO1111	PHASS111111	PHASS111111	PREV111111	PROJ111111	PROJ111111	PUDOM1111	QGBL111111	OGDLK111111
	QCEAT1111	QDSKED1111	QDSRYT1111	QDSRYT1111	QSTRV1111	QERROR1111	QERROR1111	RAD2ETH111	RAD2ETH111	PATE111111
	GGPRAG1111	GGPRAX1111	GINIT111111	GINIT111111	GINIT111111	GZBLK111111	QERROR1111	RAD2ETH111	ROU11111111	SCHCK111111
	RAREX1111	ROU111111	REMOVE1111	REMOVE1111	RITEL111111	RITEL111111	RITEL111111	RITEL111111	ROU111111	SORT111111
	SEPA111111	SIN111111	SOLCYC1111	SOLCYC1111	SOLVE111111	SOLZEN1111	SPCHIN1111	SPECOP1111	SPECOP1111	VECSUM1111
	STATJ1111	STOP111111	STRIP111111	SURVEC1111	SURVEC1111	TAN11111111	TRPLIN1111	UNITV1111	VECLIN1111	WON111111
	WORUM1111	WIPOUT1111	WOR111111	WOG111111	WOG111111	WOG111111	WOND111111	WOX111111	WON111111	WOX111111
	WOX111111	XBETA1111	XMIT111111	XMIT111111	ZTTOUT1111	ZTTOUT1111				
DELTIM1	LENGTH OF ALL ROUTINES 96									
	DELTIM1111	END11111111	SORT11111111							
DEPIN1	LENGTH OF ALL ROUTINES 2569									
	DEPIN1111	1111111111	ALOG11111111	CREATL111111	CREATL111111	DSPWR111111	DUMP11111111	END11111111	EXP11111111	INDWR111111
	IOCHEK1111	KALLER1111	LOC11111111	MCHAR111111	MCHAR111111	OUTPTC111111	PUTDRM111111	QCEASE111111	QGBAG111111	QDSRED1111
	QDSRYT1111	QDSTRY1111	QERROR1111	QFIELD1111	QFIELD1111	GGDLK111111	GGPRAX111111	GGPROP1111	HRAREX1111	RORUM111111
	RITEL1111	SORT111111	STOP11111111	TRPLIN1111	TRPLIN1111	WOG11111111	WOX11111111	WOX11111111	AMIT111111	
DEPO111	LENGTH OF ALL ROUTINES 926									
	DEPO111111	1111111111	ACOS11111111	ALOG11111111	ALOG11111111	ATAN21111111	CONJUG111111	COS11111111	END11111111	ETH2RAD1111
	FZET111111	INDWR111111	KALLER111111	MCHAR111111	MCHAR111111	OUTPTC111111	QERROR111111	QFIELD111111	QFLDST111111	QERROR1111
	RAD2ETH1111	SIN11111111	SORT11111111							
DEPOWER1	LENGTH OF ALL ROUTINES 7									
	DEPOWER111	END11111111								
DISCRIM	LENGTH OF ALL ROUTINES 18029									
	DISCRIM1111	1111111111	ACGDER111111	ACOS11111111	ALOG11111111	ALOG10111111	ALTF11111111	ASIN11111111	ATAN11111111	ATAN21111111
	ATWOS111111	AZF11111111	BETAGT111111	BFIELD111111	BLSTIC111111	BTUPD11111111	CONJUG111111	CORTRAM1111	COS11111111	CREATE111111
	CREATL111111	CREATX111111	CROSS11111111	CROSS11111111	DOT11111111	DSADMP111111	DSLNTM111111	DSPWR11111111	DSTRY111111	DSXPND1111

DUMP:	DUSCAT:	DUSTUP:	ELF:	END:	ETHRAD:	EULANG:	EXIT:	EXP:	EXTENT:
EXT:	FOIVER:	FITTER:	GRAV:	HTOS:	INDWRD:	INDWRL:	INTRP:	IOCHEK:	IONOSU:
JULIAN:	KALLER:	KUTTA:	LOCKD:	LOCAL:	LSINTH:	MATMULT:	MATBANS:	MCHAR:	MIXER:
NEXT:	NLOKOS:	ORAP:	ORNTIM:	OUTPTC:	PLTFM:	POINTS:	PRELOC:	PROJ:	PUGRA:
PUTTOP:	QCEASE:	QCREAT:	QDRAG:	QUSRED:	QDSRY:	QOSTRY:	QERROR:	QFIELD:	QFLOST:
QCALK:	QOHLK:	QORAG:	QHHAK:	GGTZWO:	QINIT:	QPTZWO:	QEROR:	QEROR:	QANTRY:
RANZETH:	RAMP:	RATE:	RRAREX:	RRAREX:	RRAREX:	RITEA:	RITEA:	RNV:	SEPA:
SIN:	SOLCYC:	SOLOR:	SOLVE:	SOLZEN:	SONIC:	SPWIN:	SPWIN:	STOP:	STREP:
SURVEC:	TAN:	TRANSF:	TRPLATE:	UNITV:	VECLIN:	VECSUM:	WHERE:	WHERE:	WOB:
AMAG:	XMIT:	ZTTOUT:							
DISPERS	LENGTH OF ALL ROUTINES	68							
DISPERS:	END:	SORT:							
DRATE:	LENGTH OF ALL ROUTINES	725							
DRATE:	END:	EXP:	RATE:	RBAREX:	SBAREX:				
DRORR2:	LENGTH OF ALL ROUTINES	4231							
DRORR2:	EXP:	ACQVER:	ACOS:	ALOG:	ASIN:	ATAN:	ATAN:	COS:	CROSS:
CROSL:	DOT:	END:	EULANG:	EXP:	FDIV:	GOTOALT:	GRAV:	JCOBIA:	KALLER:
LOCAL:	MATIN:	MATMULT:	MATNVT:	MCHAR:	NSOLVE:	ORBP:	ORBP:	ORBIT:	OUTPTC:
QERROR:	SEPA:	SIN:	SITEP:	SBAREX:	STOP:	SURVEC:	TRANSF:	UNITV:	VECLIN:
AMAG:	XMIT:								
DTNEP:	LENGTH OF ALL ROUTINES	1021							
DTNEP:	ALOG:	END:	EXP:	RBAREX:	SBAREX:				
DTNEQ:	LENGTH OF ALL ROUTINES	1211							
DTNEQ:	END:	EXP:	EXP:	RBAREX:	SBAREX:				
DUSCAT:	LENGTH OF ALL ROUTINES	2076							
DUSCAT:	EXP:	ALOG:	DSADMP:	DUMP:	END:	INDWPL:	IOCHEK:	KALLER:	LOCKD:
MCHAR:	MIXER:	NEXT:	NLOKOS:	OUTPTC:	QCEASE:	QCREAT:	QERROR:	QERROR:	QERROR:
QOSTRY:	QERROR:	QFIELD:	QFIELD:	QFIELD:	QFIELD:	QFIELD:	QFIELD:	QFIELD:	QFIELD:
RITEZ:	SBAREX:	WDRUM:	XMIT:	XMIT:	XMIT:	XMIT:	XMIT:	XMIT:	XMIT:
DUSTINI:	LENGTH OF ALL ROUTINES	2469							
DUSTINI:	EXP:	ALOG:	CREATE:	CREATE:	DSADMP:	DSADMP:	DUMP:	END:	INDWPL:
IOCHEK:	KALLER:	MCHAR:	NLOKOS:	OUTPTC:	PGROUP:	PURTOT:	QCEASE:	QCEASE:	QERROR:
QOSTRY:	QERROR:	QFIELD:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:
QOSTRY:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:
DUSTUP:	LENGTH OF ALL ROUTINES	2244							
DUSTUP:	EXP:	DSADMP:	DUMP:	END:	INDWPL:	INDWPL:	IOCHEK:	KALLER:	LOCKD:
MCHAR:	MIXER:	NEXT:	NLOKOS:	OUTPTC:	QCEASE:	QCEASE:	QERROR:	QERROR:	QERROR:
QOSTRY:	QERROR:	QFIELD:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:
SBAREX:	VECLIN:	WDRUM:	XMIT:	XMIT:	XMIT:	XMIT:	XMIT:	XMIT:	XMIT:
DYNPLOT:	LENGTH OF ALL ROUTINES	3387							
DYNPLOT:	EXP:	ALFABET:	ALOG:	COS:	DSADMP:	DUMP:	END:	IOCHEK:	KALLER:
LOCKD:	MCHAR:	MCHAR:	MSHIFT:	NLOKOS:	OUTPTC:	OUTPTC:	OUTPTC:	OUTPTC:	OUTPTC:
PLOTS:	PTORCH:	QCEASE:	QCEASE:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:
QFLOST:	QOHLK:	QOHLK:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:	QERROR:

2-101

2-104

2-105

2-106

INVTYI	QGCRLKIIII	QGOBLKIIII	QGRBAGIIII	QGRRAAIIII	GGTZNDIIII	QINITIIII	QZBLKIIII	QERRORIIII	RA02ETHIIII	RATEIIIIII
	PRAREXIIII	RRRUMIIII	RITEZIIII	SEPAIIII	SINIIIII	SOLCYCIIII	SOLOBIIII	SOLVEIIII	SPCHINIIII	SYTOUITIIII
	SRRTIIIIII	SURVECIIIII	TANIIIIII	UNITVIIII	VECLINIIII	WOLUMIIII	WOB0DIIII	XMAGIIIIII	XMITIIIIII	ZYTOUTIIII
	LENGTH OF ALL ROUTINES	2000								
	INVTYIIII	IIIIIIII	ACGOERIIII	DSADWPIII	DUMPIIIII	ENDIIIIII	INDWRDIIII	INDWRLIIII	IOCHEKIIII	KALLERIIII
	LOCKOSIIII	MCHABIIII	NLOKOSIIII	OUTPTCIIII	QCEASEIIII	QCHEATIIII	QDRBAGIIII	QDSPREDIIII	QDSRYTIIII	QDSTRYIIII
	QERRORI	OFIELDIIII	OFLDSTIIII	QGCRLKIIII	QGOBLKIIII	QGRBAGIIII	QGRBAKIIII	QERRORI	RDRUMIIII	SRRTIIIIII
	WDRUMIIII	XMITIIIIII								
IONLEKI	LENGTH OF ALL ROUTINES	131								
	IONLEKIIII	ENDIIIIII	RBAREXIIII							
IONOSUI	LENGTH OF ALL ROUTINES	7145								
	IONOSUIII	IIIIIIII	ACGOERIIII	ALOGIIIIII	ALOGI0IIII	ATMOSIIII	COSIIIIIIII	ENDIIIIII	EXITIIIIII	EXPIIIIIII
	FITTERIIII	INDWRLIIII	JULIANIIII	KALLERIIII	MCHABIIII	NLOKOSIIII	OUTPTCIIII	QERRORI	OFIELDIIII	OFLOSTIIII
	QERRORI	RATEIIIIII	RBAREXIIII	SINIIIII	SOLCYCIIII	SOLORBIIIII	SOLVEIIII	SOLZENIIII	SPCHINIIII	SRRTIIIIII
	ZYTOUTIIII									
JCOBIAN	LENGTH OF ALL ROUTINES	105								
	JCOBIANIIII	ENDIIIIII	XMITIIIIII							
JULIANI	LENGTH OF ALL ROUTINES	72								
	JULIANIIII	ENDIIIIII								
KALMANI	LENGTH OF ALL ROUTINES	1157								
	KALMANIIII	CHOLSKIIII	ENDIIIIII	LOGFIIIIIII	MATADDIIII	MATMULTIIII	MATTRANSIIII	MATSUBIIII	OUTPTCIIII	RITEFIIIII
	SRRTIIIIII									
KUTTAII	LENGTH OF ALL ROUTINES	168								
	KUTTAIIIIII	ACGOERIIII	ENDIIIIII	XMITIIIIII						
LAUNCHI	LENGTH OF ALL ROUTINES	4654								
	LAUNCHIIII	IIIIIIII	ACGOERIIII	ACOSIIIIII	ALOGIIIIII	ASINIIIII	ATAN2IIIIII	AZFIIIIIIII	COSIIIIIIII	CREATEIIIIII
	CREATIIII	CREATIIII	DOTIIIIII	DSADMPIIII	DSADWDIIII	DUMPIIIII	ELFIIIIIII	ENDIIIIII	EULANGIIII	EXPIIIIIII
	FDIVIIIIII	GRAVINIIII	INDWRDIIII	INDWRLIIII	IOCHEKIIII	KALLERIIII	LOCKOSIIII	MCHARIIIIII	NEXTIIIIII	NLOKOSIIII
	GRAPIIIIII	GRATINIIII	OUTPTCIIII	OUTPTSIIII	PURBOTIIII	PUTORAIIIII	QCEASEIIII	QCREATIIII	QDRBAGIIII	QDSREDIIII
	QDSRYTIIII	QDSTRYIIII	QERRORI	OFIELDIIII	OFLOSTIIII	QGCBLKIIII	QGOBLKIIII	QGRBAGIIII	QGRBAKIIII	QGTZNDIIII
	QZALOKIIII	QERRORIIII	QBATRYIIII	RRRUMIIII	SEPAIIIIII	SINIIIII	SRRTIIIIII	STREPIIIII	STRPFIIIII	TRANSPFIIIII
	WDRUMIIII	XMAGIIIIII	XMITIIIIII							
LEKSPCI	LENGTH OF ALL ROUTINES	68								
	LEKSPCIIII	ENDIIIIII	SRRTIIIIII							
LIMITS	LENGTH OF ALL ROUTINES	241								
	LIMITSIIII	DOTIIIIII	ENDIIIIII	INSIDEIIII	SRRTIIIIII	XMAGIIIIII				
LOSCONI	LENGTH OF ALL ROUTINES	243								
	LOSCONIIII	ALOGIIIIII	ENDIIIIII	RRAREXIIII	SRRTIIIIII					
MAGFITI	LENGTH OF ALL ROUTINES	1525								
	MAGFITIII	IIIIIIII	ASINIIIII	ATANIIIIII	COSIIIIIIII	CREATIIII	DSADWDIIII	ENDIIIIII	INDWRLIIII	KALLERIIII
	LOGKOSIIII	MCHABIIII	NLOKOSIIII	ONENGSTIIII	OUTPTCIIII	QERRORIIII	QFIELDIIII	QFLOSTIIII	QERRORIIII	SINIIIIIII

SORT:11111		LENGTH OF ALL ROUTINES 60	
MCHARCT	END:11111 MCHAR:1111		
MEASERR		LENGTH OF ALL ROUTINES 837	
MEASERR	1111111111 ACQERR:1111	ALOG:11111	END:1111111111
NLOKUS:1111	OUTPTC:1111	ERRROR:1111	QFLOST:1111
SORT:11111			
MLTPATH		LENGTH OF ALL ROUTINES 35337	
MLTPATH:11111111	ARSINC:1111	ACQERR:1111	ALOG:11111
ATAN2:11111	ATMOS:1111	BFIELD:1111	CHEMHR:1111
COLLF:1111	COMP2:1111	CONJUG:1111	CHEMHR:1111
DESP:1111	DEPNO:1111	DOT:1111	CREAT:1111
ELENS:1111	ELF:1111	END:1111	DSADMP:1111
EXTB:1111	EXTA:1111	E2:1111	EQLAIR:1111
INDRM:1111	INDRO:1111	INITAL:1111	EQMLT:1111
LOCKUS:1111	LOCAX:1111	LSLNT:1111	FOI:1111
PEPER:1111	PHOTO:1111	PHOTR:1111	FOI:1111
QCEASE:1111	QCREAT:1111	QERRROR:1111	FOI:1111
QGBAL:1111	QGBAG:1111	QGBAG:1111	FOI:1111
PADETH:1111	PATE:1111	RBAREX:1111	FOI:1111
RITEZ:1111	ROOT:1111	SCHCK:1111	FOI:1111
SPC/LAR:1111	SPECOP:1111	SPECQ:1111	FOI:1111
TRPLIN:1111	UNITV:1111	VECLIN:1111	FOI:1111
WONP:1111	WONP:1111	WONP:1111	FOI:1111
MLTSPLE		LENGTH OF ALL ROUTINES 2403	
MLTSPLE:11111111	AMRGN:1111	OSADMP:1111	DUMP:1111
LOCKUS:1111	MCHAR:1111	NEXT:1111	OUTPTC:1111
GOSTRY:1111	GERROR:1111	QFLOST:1111	QGBAL:1111
RBAREX:1111	POPUM:1111	SINI:1111	WDRUM:1111
MNOPLS1		LENGTH OF ALL ROUTINES 2429	
MNOPLS1:11111111	AMRGN:1111	ATAN2:1111	COS:1111
IOCHEK:1111	KALLER:1111	LOCKDS:1111	NEXT:1111
QOSPED:1111	QOSRYT:1111	GOSTRY:1111	QFLOST:1111
QREPROR:1111	RANF:1111	RBAREX:1111	SINI:1111
MNOPLSM		LENGTH OF ALL ROUTINES 2394	
MNOPLSM:11111111	AMRGN:1111	ATAN2:1111	COS:1111
IOCHEK:1111	KALLER:1111	LOCKDS:1111	NEXT:1111
QOSPED:1111	QOSRYT:1111	GOSTRY:1111	QFLOST:1111
QREPROR:1111	RANF:1111	RBAREX:1111	SINI:1111
MNOPLS1		LENGTH OF ALL ROUTINES 1947	
MNOPLS1:11111111	ATAN2:1111	COS:1111	DSADMP:1111
KALLER:1111	LOCKDS:1111	MCHAR:1111	OUTPTC:1111
GOSTRY:1111	GERROR:1111	QFLOST:1111	QGBAL:1111
SINI:1111	SORT:1111	WDRUM:1111	XMT:1111
MODEL11		LENGTH OF ALL ROUTINES 23039	
MODEL11:11111111	ATAN2:1111	COS:1111	DSADMP:1111
KALLER:1111	LOCKDS:1111	MCHAR:1111	OUTPTC:1111
GOSTRY:1111	GERROR:1111	QFLOST:1111	QGBAL:1111
SINI:1111	SORT:1111	WDRUM:1111	XMT:1111

[illegible]

MODEL	LENGTH OF ALL ROUTINES	1989
MODEL1	ALG101111	ALG101111
MODEL2	ACOS1111	ACOS1111
MODEL3	ACOSR111	ACOSR111
MODEL4	ACR11111	ACR11111
MODEL5	AD111111	AD111111
MODEL6	AD111111	AD111111
MODEL7	AD111111	AD111111
MODEL8	AD111111	AD111111
MODEL9	AD111111	AD111111
MODEL10	AD111111	AD111111
MODEL11	AD111111	AD111111
MODEL12	AD111111	AD111111
MODEL13	AD111111	AD111111
MODEL14	AD111111	AD111111
MODEL15	AD111111	AD111111
MODEL16	AD111111	AD111111
MODEL17	AD111111	AD111111
MODEL18	AD111111	AD111111
MODEL19	AD111111	AD111111
MODEL20	AD111111	AD111111
MODEL21	AD111111	AD111111
MODEL22	AD111111	AD111111
MODEL23	AD111111	AD111111
MODEL24	AD111111	AD111111
MODEL25	AD111111	AD111111
MODEL26	AD111111	AD111111
MODEL27	AD111111	AD111111
MODEL28	AD111111	AD111111
MODEL29	AD111111	AD111111
MODEL30	AD111111	AD111111
MODEL31	AD111111	AD111111
MODEL32	AD111111	AD111111
MODEL33	AD111111	AD111111
MODEL34	AD111111	AD111111
MODEL35	AD111111	AD111111
MODEL36	AD111111	AD111111
MODEL37	AD111111	AD111111
MODEL38	AD111111	AD111111
MODEL39	AD111111	AD111111
MODEL40	AD111111	AD111111
MODEL41	AD111111	AD111111
MODEL42	AD111111	AD111111
MODEL43	AD111111	AD111111
MODEL44	AD111111	AD111111
MODEL45	AD111111	AD111111
MODEL46	AD111111	AD111111
MODEL47	AD111111	AD111111
MODEL48	AD111111	AD111111
MODEL49	AD111111	AD111111
MODEL50	AD111111	AD111111
MODEL51	AD111111	AD111111
MODEL52	AD111111	AD111111
MODEL53	AD111111	AD111111
MODEL54	AD111111	AD111111
MODEL55	AD111111	AD111111
MODEL56	AD111111	AD111111
MODEL57	AD111111	AD111111
MODEL58	AD111111	AD111111
MODEL59	AD111111	AD111111
MODEL60	AD111111	AD111111
MODEL61	AD111111	AD111111
MODEL62	AD111111	AD111111
MODEL63	AD111111	AD111111
MODEL64	AD111111	AD111111
MODEL65	AD111111	AD111111
MODEL66	AD111111	AD111111
MODEL67	AD111111	AD111111
MODEL68	AD111111	AD111111
MODEL69	AD111111	AD111111
MODEL70	AD111111	AD111111
MODEL71	AD111111	AD111111
MODEL72	AD111111	AD111111
MODEL73	AD111111	AD111111
MODEL74	AD111111	AD111111
MODEL75	AD111111	AD111111
MODEL76	AD111111	AD111111
MODEL77	AD111111	AD111111
MODEL78	AD111111	AD111111
MODEL79	AD111111	AD111111
MODEL80	AD111111	AD111111
MODEL81	AD111111	AD111111
MODEL82	AD111111	AD111111
MODEL83	AD111111	AD111111
MODEL84	AD111111	AD111111
MODEL85	AD111111	AD111111
MODEL86	AD111111	AD111111
MODEL87	AD111111	AD111111
MODEL88	AD111111	AD111111
MODEL89	AD111111	AD111111
MODEL90	AD111111	AD111111
MODEL91	AD111111	AD111111
MODEL92	AD111111	AD111111
MODEL93	AD111111	AD111111
MODEL94	AD111111	AD111111
MODEL95	AD111111	AD111111
MODEL96	AD111111	AD111111
MODEL97	AD111111	AD111111
MODEL98	AD111111	AD111111
MODEL99	AD111111	AD111111
MODEL100	AD111111	AD111111

[illegible]

MOVFB11	LENGTH OF ALL ROUTINES	520R
MOVFB11	11111111	ACGGER1111
CROSL1111	ECRO111111	ENDOC1111
KALLER1111	LCOF111111	MCAR111111
RADOUT1111	RADZET1111	RBAIE111111
TRBL111111	WDRUM1111	XMT111111
	ALOG111111	ASIN111111
	ET42RAD1111	EXP111111
	OUTPTC1111	PROPTY1111
	PORUM111111	RITEF111111
	ATAN211111	BFIELD1111
	GEOQUAL1111	INDEX111111
	CERROR1111	OFIELD1111
	SIN11111111	SORT111111
		COS11111111
		INDVAL1111
		OFLOST1111
		STOP111111
		CROSS111111
		TOCK111111
		GREROR1111
		TMVAR1111

[illegible]

MULTI!!!	LENGTH OF ALL ROUTINES	60
MULTI!!!	MULTI!!!	END!!!!!!

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MULTOAR      LENGTH OF ALL ROUTINES      1402
MULTOAR!!!  !!!!!! ACROER!!! ACOS!!!!!! ASIN!!!!!! ATANZ!!!!!! COS!!!!!! COSH!!!!!! CROS!!!!!! DOT!!!!!!

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MATADD:111	MCHAP:111	NEXT:111	NLOKUS:111	QSTRY:111	QSROR:111	ORATIM:111	OUTPTC:111	PUTORAI:111	QCFASE:111	QCFEAL:111
CDRAGI:111	QCSRED:111	QDSRYT:111	QOSTRY:111	QSTRY:111	QSROR:111	CFIELD:111	OFLOST:111	QSCRK:111	QSORLN:111	QGRBAG:111
QGRAX:111	QBERPOR:111	RATRAN:111	RANFI:111	RANFI:111	RATE:111	RBAREX:111	RCSMOD:111	RORJMT:111	RHOZ:111	RTTEZ:111
RNV:111	SEPA:111	SINI:111	SOLCYC:111	SOLCYC:111	SOLORM:111	SOLVLE:111	SOLZEN:111	SONIC:111	SPCMIN:111	SORT:111
STOP:111	STPE:111	SUVE:111	TRANSM:111	TRANSM:111	TRPLATE:111	TUMBLR:111	UNITV:111	VECLIN:111	VECSUM:111	WDRUM:111
WHERE:111	XMAG:111	XMT:111	ZTOUT:111	ZTOUT:111						
LENGTH OF ALL ROUTINES 3232										
POTSOL:111	ALOG:111	ATANZ:111	COS:111	COS:111	END:111	MULT:111	OUTPTC:111	RDDISK:111	SIN:111	SOLVX:111
SORT:111	STOP:111	SYMINV:111	WADISK:111	WADISK:111	XMT:111					
LENGTH OF ALL ROUTINES 1882										
PREDATA:111	HEAD:111	IFEND:111	BACKSP:111	INPUTC:111	CHEKFI:111	DATEF:111	OTIMEF:111	END:111	ENDDOC:111	EXIT:111
OLDATA:111	OUTPTC:111	RANFI:111	REWIN:111	REWIN:111	SECOND:111	SURHEAD:111	TITLER:111	MCHAR:111	MDATE:111	MTIME:111
LENGTH OF ALL ROUTINES 10466										
PREDLOC:111	ACROER:111	ALOG:111	ALOG:111	ALOG:111	ALOG:111	ALTF:111	ATMOS:111	RETAG:111	BLSTIC:111	COS:111
CREATL:111	CROSS:111	DOT:111	DSADMP:111	DSADMP:111	DSLNTH:111	DSPRMD:111	OSTROY:111	DUMPI:111	END:111	EXIT:111
EXP:111	FOVI:111	FITTER:111	INWRO:111	INWRO:111	INWRL:111	TOCHEK:111	ONOSUI:111	JULTAN:111	KALLER:111	KUITA:111
LOCKUS:111	MATMUL:111	MATRAN:111	MCHAR:111	MCHAR:111	NLOKUS:111	OUTPTC:111	QCEASE:111	QCFATI:111	QGRBAG:111	QDSRED:111
QDSRYT:111	QOSTRY:111	QERROR:111	OFIELD:111	OFIELD:111	OFLOST:111	GGCRK:111	OGDRLK:111	OGDRAG:111	OGPRAX:111	OPTZWD:111
QERPOR:111	RANFI:111	RATE:111	RRAREX:111	RRAREX:111	RORUM:111	RHOZ:111	RNV:111	SINI:111	SOLCYC:111	SOLOPB:111
SOLVE:111	SOLZEN:111	SONIC:111	SPCMIN:111	SPCMIN:111	SORT:111	TRPLATE:111	VECLIN:111	VECSUM:111	WDRUM:111	XMAG:111
XMT:111	ZTOUT:111									
LENGTH OF ALL ROUTINES 11033										
PROMPG:111	ACROER:111	ALOG:111	ALOG:111	ALOG:111	ALOG:111	ASIN:111	ATANZ:111	BEGGE:111	RTFELD:111	RLINE:111
BOUNDY:111	CHXDEP:111	CHXLOS:111	CHXSPC:111	CHXSPC:111	CONJUG:111	CONSPC:111	COS:111	CREATL:111	CROSS:111	CROS:111
DEPIS:111	DEPIND:111	DEPOL:111	DSADMP:111	DSADMP:111	DSPRMD:111	DUMPI:111	ECRO:111	ECWR:111	END:111	ENDDOC:111
ENECH:111	ETHRAD:111	EUXFI:111	EXP:111	EXP:111	FZET:111	GEQUA:111	HOPART:111	HPCHEM:111	INDEX:111	INDWRD:111
INWRL:111	LOCHEK:111	TONLEK:111	KALLER:111	KALLER:111	LEKSPC:111	LOCPT:111	LOCKUS:111	LOCSCON:111	MCHAR:111	NLOKUS:111
OUTPTC:111	PCHEN:111	PHEAT:111	PINT:111	PINT:111	PLINE:111	PROPTY:111	PUDOMH:111	QCEASE:111	QCEAT:111	QGRBAG:111
QDSRED:111	QDSRYT:111	QOSTRY:111	QERROR:111	QERROR:111	OFIELD:111	OFLOST:111	OGDRLK:111	OGDRAG:111	OGPRAX:111	QGRBAG:111
QUAGEO:111	QERPOR:111	QSTRY:111	RADZETH:111	RADZETH:111	RRAREX:111	RDRUM:111	RITEF:111	SECOND:111	SINI:111	SORT:111
STOP:111	TEKK:111	TRPLIN:111	WDRUM:111	WDRUM:111	WOB:111	WON:111	WOXC:111	WOX:111	XMT:111	XYZGEO:111
LENGTH OF ALL ROUTINES 1127										
PROPTY:111	ACROER:111	ALOG:111	ALOG:111	ALOG:111	ALOG:111	ASIN:111	ATANZ:111	BFIELD:111	CROSS:111	CROS:111
ECRO:111	END:111	ENDDOC:111	ETHRAD:111	ETHRAD:111	INWPL:111	INWPL:111	LOCHEK:111	KALLER:111	NLOKUS:111	OUTPTC:111
GERROR:111	OFIELD:111	OFLOST:111	QERROR:111	QERROR:111	RANZETH:111	RANZETH:111	RBAREX:111	RDRUM:111	SORT:111	WDRUM:111
LENGTH OF ALL ROUTINES 117										
PTORCHI:111	END:111	PLOT:111								
LENGTH OF ALL ROUTINES 33303										
PTPROPI:111	ABSTINC:111	ACROER:111	ACROER:111	ACROER:111	ACROER:111	ALNIN:111	ALOG:111	ALOG:111	ALOG:111	ASIN:111
ATANZ:111	ATMOS:111	BFIELD:111	BFIELD:111	BFIELD:111	CHMD:111	CHMD:111	CHEMHR:111	CHEMOT:111	CHEMOT:111	COLLF:111
COMP2:111	CONJUG:111	COS:111	COS:111	COS:111	CREATL:111	CREATL:111	CREATL:111	CROSS:111	CROSS:111	DEPIND:111
DOT:111	DSADMP:111	DSADMP:111	DSADMP:111	DSADMP:111	DSADMP:111	DSADMP:111	DTNEP:111	DTNEP:111	DUMPI:111	END:111
EGLAT:111	EGRAT:111	ETHRAD:111	ETHRAD:111	ETHRAD:111	ETHRAD:111	ETHRAD:111	EXP:111	EXP:111	EXP:111	FOVI:111
FITTER:111	HYDRO:111	INDWRD:111	INDWRD:111	INDWRD:111	INDWRD:111	INDWRD:111	INDWRD:111	INDWRD:111	INDWRD:111	INDWRD:111
JULIAN:111	KALLER:111	LOCKUS:111	LOCKUS:111	LOCKUS:111	LOCKUS:111	LOCKUS:111	LOCKUS:111	LOCKUS:111	LOCKUS:111	LOCKUS:111

[illegible][illegible]

QINV:--	LENGTH OF ALL ROUTINES	120
QINV:--	QINV:--	QINV:--

QUAGEO:	LENGTH OF ALL ROUTINES	172
QUAGEO111	ACOS111111	ASIN111111
	COS111111	END111111
		SIN111111
		SORT111111

RADAR!!		LENGTH OF ALL ROUTINES		20587	
RADAR!!!	1111111111	ACQERR!!!	ADVANCE!!!	ALOG10!!!	ALT111111
ATMOS!!!	AZE111111	BLLSTIC!!!	ARDER!!!	CORTRAN!!!	COS111111
CREAT!!!	CROSS1111	BETAG1111	DSADMP!!!	DSMPURD!!!	DSXPAND!!!
EUF111111	END111111	CROSL1111	EXP111111	FILLER!!!	GOTOALT!!!
END111111	EULANG1111	EXIT111111	JCOBIAN!!!	KALLER!!!	KUTTA111111
INDWRD1111	INDWPL1111	IOCKEX1111	IONOSU1111	MATTN1111	MATWNR1111
LOCKOSS111	LOCLAX1111	LEASER1111	MEATADD111	MATNVL1111	MATWNR1111
MATCH11111	MLSTR1111	MLSEAR1111	MYT111111	MATNUL1111	MATWNR1111
MATSUB1111	MCHAR1111	NEAT111111	NLOKOS1111	ORBIT1111	OUTPTC1111
PREDLOC111	PUR90T1111	PUTDR1111	PUTOR1111	QCREAT1111	QDSRVT1111
QDSRTHV1111	QFJELD1111	QFLOST1111	QGBCLK1111	QGRAG1111	QGT2D1111
QZPLOR1111	QREPOR1111	QBNTRY1111	QGBLKL1111	QGRAX1111	QPT2ND1111
RITFEV11111	RITEF11111	RATRON1111	RAV111111	RDRIM1111	RHOZ111111
RITFEV1111	RITEZ11111	RNV111111	SEARCH1111	SEPA111111	SOLCYC1111
SOLVE11111	SOLZEN1111	SONIC11111	SGBT11111	SIN111111	SOLORR1111
TRNSFM1111	TRPLATE111	SPOKIN1111	STOP11111	SURVEC1111	TRACK1111
ATM-RSM1111	UNITV11111	VECLIN1111	VECSUM1111	WHERE1111	XMAG111111
	ZTTOUT1111			WDJUM1111	XMIT111111

[illegible]

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REFLST:1111111111	ABSINC:1111111111	ACGOER:1111111111	ALNLI:1111111111	ALOG:1111111111	ALOG10:1111111111	AMPREF:1111111111	ASIN:1111111111
ATAN:1111111111	ATMOS:1111111111	ACOS:1111111111	ALNLI:1111111111	CHEMHR:1111111111	CHEM10:1111111111	CHEM10:1111111111	CIPHER:1111111111
COLLF:1111111111	COMP3:1111111111	CONJUG:1111111111	CREATE:1111111111	CREATE:1111111111	CREATE:1111111111	CROSS:1111111111	CROSS:1111111111
DEPND:1111111111	DOT:1111111111	DRATE:1111111111	DSADMP:1111111111	DSADMP:1111111111	DTNEP:1111111111	DTNEP:1111111111	DUMP:1111111111
ELDEN:1111111111	END:1111111111	EQLAIR:1111111111	EQLMT:1111111111	EQLMT:1111111111	EXIT:1111111111	EXTENT:1111111111	EXTENT:1111111111
EXTRP:1111111111	ELI:1111111111	E2:1111111111	FITTE:1111111111	FITTE:1111111111	FITTE:1111111111	HYDRO:1111111111	HYDRO:1111111111
INDRM:1111111111	INOWRL:1111111111	INITAL:1111111111	INSIDE:1111111111	INSIDE:1111111111	JULIAN:1111111111	KALLER:1111111111	LOCFL:1111111111
LOCKOS:1111111111	LSLWTH:1111111111	MATMUL:1111111111	MCHAR:1111111111	MIXER:1111111111	MULTI:1111111111	MULTI:1111111111	MULTI:1111111111
PAUSE:1111111111	PEDEP:1111111111	PHOTO:1111111111	PHASS:1111111111	PREV:1111111111	PROJ:1111111111	PUTBOT:1111111111	PUTBOT:1111111111
PUTOR:1111111111	QCEASE:1111111111	QCEASE:1111111111	QDSRY:1111111111	QDSRY:1111111111	QDSRY:1111111111	QDSRY:1111111111	QDSRY:1111111111
QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111
RADTRAN:1111111111	RADZET:1111111111	RATE:1111111111	RATE:1111111111	RATE:1111111111	RATE:1111111111	RATE:1111111111	RATE:1111111111
RITEF:1111111111	RITEZ:1111111111	RITEZ:1111111111	RITEZ:1111111111	RITEZ:1111111111	RITEZ:1111111111	RITEZ:1111111111	RITEZ:1111111111
SOLVE:1111111111	SOLZEN:1111111111	SOLZEN:1111111111	SOLZEN:1111111111	SOLZEN:1111111111	SOLZEN:1111111111	SOLZEN:1111111111	SOLZEN:1111111111
SUBVEC:1111111111	SYZGY:1111111111	SYZGY:1111111111	SYZGY:1111111111	SYZGY:1111111111	SYZGY:1111111111	SYZGY:1111111111	SYZGY:1111111111
WOGD:1111111111	WOGP:1111111111	WOGP:1111111111	WOGP:1111111111	WOGP:1111111111	WOGP:1111111111	WOGP:1111111111	WOGP:1111111111
XMIT:1111111111	ZTOUT:1111111111	ZTOUT:1111111111	ZTOUT:1111111111	ZTOUT:1111111111	ZTOUT:1111111111	ZTOUT:1111111111	ZTOUT:1111111111

REFRACT

LENGTH OF ALL ROUTINES 33573

REFRACT:1111111111	BIAS:1111111111	ACGOER:1111111111	ALNLI:1111111111	ALOG10:1111111111	ASIN:1111111111	ATAN:1111111111	ATAN2:1111111111
ATMOS:1111111111	BIAS:1111111111	ACGOER:1111111111	ALNLI:1111111111	CHEM10:1111111111	CIPHER:1111111111	COLLF:1111111111	CONJUG:1111111111
COS:1111111111	CREATE:1111111111	CREATE:1111111111	CREATE:1111111111	DEPND:1111111111	DEPND:1111111111	DOT:1111111111	DRATE:1111111111
DSADMP:1111111111	DSADMP:1111111111	DSADMP:1111111111	DSADMP:1111111111	ELDEN:1111111111	ELDEN:1111111111	EQLAIR:1111111111	EQLMT:1111111111
EGRAT:1111111111	EGRAT:1111111111	EGRAT:1111111111	EGRAT:1111111111	EXIT:1111111111	EXIT:1111111111	FITTE:1111111111	FITTE:1111111111
GRADNE:1111111111	GRADNE:1111111111	GRADNE:1111111111	GRADNE:1111111111	HYDRO:1111111111	HYDRO:1111111111	INSIDE:1111111111	INSIDE:1111111111
IONOSU:1111111111	JULIAN:1111111111	KALLER:1111111111	KALLER:1111111111	LOCFL:1111111111	LOCFL:1111111111	MCHAR:1111111111	MIXER:1111111111
NEXT:1111111111	NLOKOS:1111111111	OUTPTC:1111111111	OUTPTC:1111111111	PEDEP:1111111111	PEDEP:1111111111	PREV:1111111111	PREV:1111111111
PUTBOT:1111111111	PUTBOT:1111111111	QCEASE:1111111111	QCEASE:1111111111	QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111
QFLOST:1111111111	QFLOST:1111111111	RATE:1111111111	RATE:1111111111	RATE:1111111111	RATE:1111111111	RATE:1111111111	RATE:1111111111
RADOUT:1111111111	RADZET:1111111111	RADZET:1111111111	RADZET:1111111111	RADZET:1111111111	RADZET:1111111111	RADZET:1111111111	RADZET:1111111111
RITEZ:1111111111	ROOTT:1111111111	SCHCK:1111111111	SCHCK:1111111111	SCHCK:1111111111	SCHCK:1111111111	SCHCK:1111111111	SCHCK:1111111111
SPCMIN:1111111111	SPCDP:1111111111	SPCDP:1111111111	SPCDP:1111111111	SPCDP:1111111111	SPCDP:1111111111	SPCDP:1111111111	SPCDP:1111111111
TAN:1111111111	TAYLOR:1111111111	TRPLIN:1111111111	TRPLIN:1111111111	TRPLIN:1111111111	TRPLIN:1111111111	TRPLIN:1111111111	TRPLIN:1111111111
WOGP:1111111111	WOGP:1111111111	WOGP:1111111111	WOGP:1111111111	WOGP:1111111111	WOGP:1111111111	WOGP:1111111111	WOGP:1111111111
ZTOUT:1111111111	ZTOUT:1111111111	ZTOUT:1111111111	ZTOUT:1111111111	ZTOUT:1111111111	ZTOUT:1111111111	ZTOUT:1111111111	ZTOUT:1111111111

REF15:

LENGTH OF ALL ROUTINES 38347

REF15:1111111111	ABSINC:1111111111	ACGOER:1111111111	ALNLI:1111111111	ALOG:1111111111	ALOG10:1111111111	AMPREF:1111111111	ASIN:1111111111
ATAN:1111111111	ATMOS:1111111111	ACOS:1111111111	ALNLI:1111111111	CHEM10:1111111111	CHEM10:1111111111	CHEM10:1111111111	CIPHER:1111111111
CIPHER:1111111111	COMP3:1111111111	CONJUG:1111111111	CREATE:1111111111	CREATE:1111111111	CREATE:1111111111	CROSS:1111111111	CROSS:1111111111
CROSS:1111111111	DEPND:1111111111	DISPERS:1111111111	DRATE:1111111111	DSADMP:1111111111	DSADMP:1111111111	DTNEP:1111111111	DTNEP:1111111111
DTNEP:1111111111	ELDEN:1111111111	ELI:1111111111	EQLAIR:1111111111	EQLMT:1111111111	EQLMT:1111111111	EXTENT:1111111111	EXTENT:1111111111
EGRAT:1111111111	EGRAT:1111111111	EGRAT:1111111111	EGRAT:1111111111	EXIT:1111111111	EXIT:1111111111	HYDRO:1111111111	HYDRO:1111111111
GRADNE:1111111111	GRADNE:1111111111	GRADNE:1111111111	GRADNE:1111111111	HYDRO:1111111111	HYDRO:1111111111	INSIDE:1111111111	INSIDE:1111111111
IONOSU:1111111111	JULIAN:1111111111	KALLER:1111111111	KALLER:1111111111	LOCFL:1111111111	LOCFL:1111111111	MCHAR:1111111111	MIXER:1111111111
MLTPATH:1111111111	MLTPATH:1111111111	MLTPATH:1111111111	MLTPATH:1111111111	MLTPATH:1111111111	MLTPATH:1111111111	MLTPATH:1111111111	MLTPATH:1111111111
PHASSF:1111111111	PHASSF:1111111111	PHASSF:1111111111	PHASSF:1111111111	PHASSF:1111111111	PHASSF:1111111111	PHASSF:1111111111	PHASSF:1111111111
QDSRY:1111111111	QDSRY:1111111111	QDSRY:1111111111	QDSRY:1111111111	QDSRY:1111111111	QDSRY:1111111111	QDSRY:1111111111	QDSRY:1111111111
QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111	QGBRLK:1111111111
RADZET:1111111111	RADZET:1111111111	RADZET:1111111111	RADZET:1111111111	RADZET:1111111111	RADZET:1111111111	RADZET:1111111111	RADZET:1111111111
RITEF:1111111111	RITEZ:1111111111	RITEZ:1111111111	RITEZ:1111111111	RITEZ:1111111111	RITEZ:1111111111	RITEZ:1111111111	RITEZ:1111111111
SOLORB:1111111111	SOLORB:1111111111	SOLORB:1111111111	SOLORB:1111111111	SOLORB:1111111111	SOLORB:1111111111	SOLORB:1111111111	SOLORB:1111111111
STRCTUR:1111111111	STRCTUR:1111111111	STRCTUR:1111111111	STRCTUR:1111111111	STRCTUR:1111111111	STRCTUR:1111111111	STRCTUR:1111111111	STRCTUR:1111111111

WDUM1111	WIPOUT1111	WORD111111	WOGD111111	WOSP111111	WOG111111	WOND111111	WOMP111111	WON111111	WOKP111111
WON111111	XBETA1111	XMA111111	XMIT111111	ZTTOU1111					
LENGTH OF ALL ROUTINES 4194									
REZONE1	REZONE1111	ALOG111111	DSADMP1111	DUMP111111	ECNO111111	ECNR111111	END111111	ENDDOC1111	ENECHK1111
EXP111111	FRVOL1111	INDWRD1111	IOCKEK1111	KALLER1111	LOCKDS1111	MCHAR1111	NEXT111111	NLOKDS1111	OUTPTC1111
QCEASE1111	QCREAT1111	QDRBAG1111	QDSHED1111	QDSRYT1111	QDSTRY1111	QERROR1111	OFIELD1111	QFLOST1111	QGCBLK1111
QGBL1111	QGBRAG1111	QGBAX1111	QGBRAG1111	QGBRAG1111	QGBRAG1111	QGBRAG1111	TEXT111111	WDRUM1111	XMIT111111
LENGTH OF ALL ROUTINES 7172									
RMOZ1111	RMOZ111111	ACGOER1111	ALOG101111	ALOG101111	ATMOS1111	COS111111	END111111	EXIT111111	EXP111111
FITTER1111	INDWR1111	IONOSU1111	JULIAN1111	KALLER1111	MCHAR1111	NLOKDS1111	OUTPTC1111	QERROR1111	QFIELD1111
QFLOST1111	QERROR1111	RATE111111	RBAREX1111	SIN111111	SOLCYC1111	SOLORB1111	SOLVE1111	SOLZEN1111	SPCMIN1111
SORT111111	ZTTOU1111								
LENGTH OF ALL ROUTINES 346									
RICATT1	RICATT1111	END111111	EXP111111	E11111111					
LENGTH OF ALL ROUTINES 298									
RITEF11	RITEF1111	LOC111111	OUTPTC1111						
LENGTH OF ALL ROUTINES 135									
RITEV11	RITEV1111	LOC111111	OUTPTC1111						
LENGTH OF ALL ROUTINES 70									
ROOTT11	ROOTT1111	OUTPTC1111	RRAREX1111						
LENGTH OF ALL ROUTINES 891									
ROSCOE1	ROSCOE1111	DSADMP1111	END111111	IOCKEK1111	KALLER1111	MCHAR1111	OUTPTC1111	OVERLAY1111	ODSRED1111
QDSRYT1111	QERROR1111	OFIELD1111	QFLOST1111	QINITL1111	QERROR1111	QBNTRY1111	RANF111111	RDRUM1111	SORT111111
WDUM1111	XMIT1111								
LENGTH OF ALL ROUTINES 4214									
ROSREAD	ROSREAD1111	ACGOER1111	BACKSP1111	CHEKFIL1111	COUNOUT1111	DATEF1111	DSADMP1111	DTIMEF1111	DUMP111111
END111111	ENDDOC1111	EXIT111111	FOIV111111	PLEKRED1111	HEAD111111	IFEND1111	INDWRD1111	INPUTC1111	INPUTS1111
INT111111	IOCKEK1111	KALLER1111	LOCKDS1111	LSKIP1111	MAKUNIT1111	MCHAR1111	MDATE1111	MORDATA1111	MTIME1111
QLOATA1111	OUTPTC1111	PREDATA1111	OCEASE1111	QCREAT1111	QDSRED1111	QDSRYT1111	QDSRYT1111	QDSTRY1111	QERROR1111
QFIELD1111	QFLOST1111	QGCBLK1111	QGBL1111	QGBRAG1111	QGBRAG1111	QGBRAG1111	QBNTRY1111	RANF111111	RDRUM1111
REVINM1111	SECOND1111	SETHORD1111	SORT111111	SURHEAD1111	TITLER1111	TITLIN1111	TRADER1111	WDRUM1111	XMIT111111
LENGTH OF ALL ROUTINES 288									
ROTVEC1	ROTVEC1111	ACOS111111	COS111111	CROSS1111	CROSS1111	DOT111111	END111111	FOIV111111	SIN111111
SQRT111111	UNITV1111	VECLIN1111	XMA111111						
LENGTH OF ALL ROUTINES 1927									
SCHCK11	SCHCK1111	DSADMP1111	DUMP111111	END111111	INDWRD1111	IOCKEK1111	IOCKEK1111	KALLER1111	LOCKDS1111
MCHAR1111	OUTPTC1111	OCEASE1111	QCREAT1111	QGBRAG1111	QDSRED1111	QDSRYT1111	QDSTRY1111	QERROR1111	QFIELD1111
QFLOST1111	QGCBLK1111	QGBL1111	QGBRAG1111	QGBRAG1111	QGBRAG1111	QGBRAG1111	SORT111111	SURVEC1111	VECLIN1111
WDUM1111	XMA111111	XMIT111111							
LENGTH OF ALL ROUTINES 15060									
SEARCH1	SEARCH1111	ACGOER1111	ACOS111111	ALOG111111	ALOG101111	ALTF111111	ASIN111111	ATAN211111	ATMOS1111
AZF111111	BETAG1111	BLLSTIC1111	CORTRAN1111	COS111111	CREATE1111	CREATL1111	CREATN1111	CROSS1111	CROSS1111

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MCHAR: NEXT: NLOKDS: OUTPUTC: OCEASE: QCREAT: QDBAG: QDSRED: QDSRYT: QDSRYT: QDSRYT:
ERRR: OFIELD: OFLDS: QDBLK: QDBLK: QDBLK: QDBLK: QDBLK: QDBLK: QDBLK: QDBLK: QDBLK:
SURVEC: VECLIN: WDRUM: XMB: XMB: XMB: XMB: XMB: XMB: XMB: XMB: XMB:
SUB2: LENGTH OF ALL ROUTINES 93
SUB2: SUB2: END: EXP: VFUNC:
SUB3: LENGTH OF ALL ROUTINES 2716
SUB3: SUB3: AC30ER: DUMP: DUMP: DUMP: DUMP: DUMP: DUMP: DUMP: DUMP: DUMP:
LOCKD: MCHAR: OUTPUTC: OCEASE: QCREAT: QDBAG: QDBAG: QDBAG: QDBAG: QDBAG: QDBAG:
OFIELD: OFLDS: QDBLK: QDBLK: QDBLK: QDBLK: QDBLK: QDBLK: QDBLK: QDBLK: QDBLK:
SUB4: SUBS: SUB6: VFUNC: VFUNC: VFUNC: VFUNC: VFUNC: VFUNC: VFUNC: VFUNC: VFUNC:
SUB4: LENGTH OF ALL ROUTINES 32
SUB4: SUB4: END: SORT:
SUB5: LENGTH OF ALL ROUTINES 36
SUB5: SUB5: END:
SUB6: LENGTH OF ALL ROUTINES 134
SUB6: SUB6: END:
SUB9: LENGTH OF ALL ROUTINES 565
SUB9: SUB9: AC30ER: ALO: END: END: END: END: END: END: END: END: END: END:
SVPEAKS: LENGTH OF ALL ROUTINES 2243
SVPEAKS: SUBPEAKS: AMBGN: NEXT: NLOKDS: NLOKDS: NLOKDS: NLOKDS: NLOKDS: NLOKDS:
KALLER: LOCKD: MCHAR: MCHAR: MCHAR: MCHAR: MCHAR: MCHAR: MCHAR: MCHAR: MCHAR:
QDSRYT: QDSRYT: QDSRYT: QDSRYT: QDSRYT: QDSRYT: QDSRYT: QDSRYT: QDSRYT: QDSRYT:
RBAREX: RDRUM: SIN: SORT: SORT: SORT: SORT: SORT: SORT: SORT: SORT: SORT:
SYMINV: LENGTH OF ALL ROUTINES 235
SYMINV: SYMINV: END:
SYZGYI: LENGTH OF ALL ROUTINES 265
SYZGYI: SYZGYI: ALO: ATANI: ATANI: ATANI: ATANI: ATANI: ATANI: ATANI: ATANI: ATANI:
TARGMSV: LENGTH OF ALL ROUTINES 38339
TARGMSV: TARGMSV: ABSINC: ABSORB: ABSORB: ABSORB: ABSORB: ABSORB: ABSORB: ABSORB: ABSORB: ABSORB:
ASIN: ASPECT: ATANI: ATANI: ATANI: ATANI: ATANI: ATANI: ATANI: ATANI: ATANI: ATANI:
CIPHER: CLINT: CLUTING: COLL: COMP2: COMP3: CONJUG: CONJUG: CONJUG: CONJUG: CONJUG:
CREAT: CROSS: CROS: DEDEP: DEDEP: DEDEP: DEDEP: DEDEP: DEDEP: DEDEP: DEDEP:
DSTROY: DTNEP: DTNEQ: DUMP: DUMP: DUMP: DUMP: DUMP: DUMP: DUMP: DUMP: DUMP:
ETHRAD: EXT: EXP: EXTENT: EXTENT: EXTENT: EXTENT: EXTENT: EXTENT: EXTENT: EXTENT:
FDIV: FITTER: GOAT: GOAT: GOAT: GOAT: GOAT: GOAT: GOAT: GOAT: GOAT: GOAT:
INSIDE: IOCHER: IONOSU: JOLIAN: JOLIAN: JOLIAN: JOLIAN: JOLIAN: JOLIAN: JOLIAN: JOLIAN:
MCHAR: MIXER: NEXT: NLOKDS: NLOKDS: NLOKDS: NLOKDS: NLOKDS: NLOKDS: NLOKDS: NLOKDS:
PHASSF: POINTS: PREV: PROJ: PROJ: PROJ: PROJ: PROJ: PROJ: PROJ: PROJ: PROJ:
QDSRED: QDSRYT: QDSRYT: QDSRYT: QDSRYT: QDSRYT: QDSRYT: QDSRYT: QDSRYT: QDSRYT:
QGTZWO: QINIT: QGTZWO: QZLOK: QZLOK: QZLOK: QZLOK: QZLOK: QZLOK: QZLOK: QZLOK:
RDRUM: REFCOL: REFCOL: REFCOL: REFCOL: REFCOL: REFCOL: REFCOL: REFCOL: REFCOL: REFCOL:
ROOT: SCHCK: SEPA: SIN: STATUS: STATUS: STATUS: STATUS: STATUS: STATUS: STATUS: STATUS:
SPECOP: SPECOP: SORT: STATUS: STATUS: STATUS: STATUS: STATUS: STATUS: STATUS: STATUS: STATUS:

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2-127

2-128

2-129

NLOKOS	OUTPTC	OCASE	OCREAT	OCORAG	QDSRED	QDSRYT	QDSTRY	QERRUR	QFIELD
QFLOST	QGBLKI	QGBLKI	QGBAGI	QGBAGI	QGBEROR	QORUM	SGRT	WDRUM	XMIT
LENGTH OF ALL ROUTINES 1965									
PUTAFT	PUTAFT	OCASE	OCREAT	OCORAG	QDSRED	QDSRYT	KALLER	MCHAR	OUTPTC
OCASE	OCREAT	OCORAG	OCORAG	QDSRYT	QDSTRY	QERROR	OFIELD	OFLOST	QGBLKI
QGBLKI	QGBAGI	QGBAGI	QGBAGI	QGBAGI	QGBEROR	RDRUM	SGRT	WDRUM	XMIT
LENGTH OF ALL ROUTINES 1877									
PUTROT	PUTROT	OCASE	OCREAT	OCORAG	QDSRED	QDSRYT	KALLER	MCHAR	OUTPTC
OCASE	OCREAT	OCORAG	OCORAG	QDSRYT	QDSTRY	QERROR	OFIELD	OFLOST	QGBLKI
QGBLKI	QGBAGI	QGBAGI	QGBAGI	QGBAGI	QGBEROR	RDRUM	SGRT	WDRUM	XMIT
LENGTH OF ALL ROUTINES 1039									
PUTORNI	PUTORNI	OCASE	OCREAT	OCORAG	QDSRED	QDSRYT	KALLER	MCHAR	OUTPTC
OCASE	OCREAT	OCORAG	OCORAG	QDSRYT	QDSTRY	QERROR	OFIELD	OFLOST	QGBLKI
QGBLKI	QGBAGI	QGBAGI	QGBAGI	QGBAGI	QGBEROR	RDRUM	SGRT	WDRUM	XMIT
LENGTH OF ALL ROUTINES 2054									
PUTORD	PUTORD	OCASE	OCREAT	OCORAG	QDSRED	QDSRYT	KALLER	MCHAR	OUTPTC
OCASE	OCREAT	OCORAG	OCORAG	QDSRYT	QDSTRY	QERROR	OFIELD	OFLOST	QGBLKI
QGBLKI	QGBAGI	QGBAGI	QGBAGI	QGBAGI	QGBEROR	RDRUM	SGRT	WDRUM	XMIT
LENGTH OF ALL ROUTINES 605									
QCEASE	QCEASE	OCASE	OCREAT	OCORAG	QDSRED	QDSRYT	KALLER	MCHAR	OUTPTC
OCASE	OCREAT	OCORAG	OCORAG	QDSRYT	QDSTRY	QERROR	OFIELD	OFLOST	QGBLKI
QGBLKI	QGBAGI	QGBAGI	QGBAGI	QGBAGI	QGBEROR	RDRUM	SGRT	WDRUM	XMIT
LENGTH OF ALL ROUTINES 1627									
QCREAT	QCREAT	OCASE	OCREAT	OCORAG	QDSRED	QDSRYT	KALLER	MCHAR	OUTPTC
OCASE	OCREAT	OCORAG	OCORAG	QDSRYT	QDSTRY	QERROR	OFIELD	OFLOST	QGBLKI
QGBLKI	QGBAGI	QGBAGI	QGBAGI	QGBAGI	QGBEROR	RDRUM	SGRT	WDRUM	XMIT
LENGTH OF ALL ROUTINES 847									
QORAG	QORAG	OCASE	OCREAT	OCORAG	QDSRED	QDSRYT	KALLER	MCHAR	OUTPTC
OCASE	OCREAT	OCORAG	OCORAG	QDSRYT	QDSTRY	QERROR	OFIELD	OFLOST	QGBLKI
QGBLKI	QGBAGI	QGBAGI	QGBAGI	QGBAGI	QGBEROR	RDRUM	SGRT	WDRUM	XMIT
LENGTH OF ALL ROUTINES 590									
QDSRED	QDSRED	OCASE	OCREAT	OCORAG	QDSRED	QDSRYT	KALLER	MCHAR	OUTPTC
OCASE	OCREAT	OCORAG	OCORAG	QDSRYT	QDSTRY	QERROR	OFIELD	OFLOST	QGBLKI
QGBLKI	QGBAGI	QGBAGI	QGBAGI	QGBAGI	QGBEROR	RDRUM	SGRT	WDRUM	XMIT
LENGTH OF ALL ROUTINES 663									
QDSRYT	QDSRYT	OCASE	OCREAT	OCORAG	QDSRED	QDSRYT	KALLER	MCHAR	OUTPTC
OCASE	OCREAT	OCORAG	OCORAG	QDSRYT	QDSTRY	QERROR	OFIELD	OFLOST	QGBLKI
QGBLKI	QGBAGI	QGBAGI	QGBAGI	QGBAGI	QGBEROR	RDRUM	SGRT	WDRUM	XMIT
LENGTH OF ALL ROUTINES 203									
QERROR	QERROR	OCASE	OCREAT	OCORAG	QDSRED	QDSRYT	KALLER	MCHAR	OUTPTC
OCASE	OCREAT	OCORAG	OCORAG	QDSRYT	QDSTRY	QERROR	OFIELD	OFLOST	QGBLKI
QGBLKI	QGBAGI	QGBAGI	QGBAGI	QGBAGI	QGBEROR	RDRUM	SGRT	WDRUM	XMIT
LENGTH OF ALL ROUTINES 15									
QFIELD	QFIELD	OCASE	OCREAT	OCORAG	QDSRED	QDSRYT	KALLER	MCHAR	OUTPTC
OCASE	OCREAT	OCORAG	OCORAG	QDSRYT	QDSTRY	QERROR	OFIELD	OFLOST	QGBLKI
QGBLKI	QGBAGI	QGBAGI	QGBAGI	QGBAGI	QGBEROR	RDRUM	SGRT	WDRUM	XMIT
LENGTH OF ALL ROUTINES 1306									

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CHEKFIL	LENGTH OF ALL ROUTINES	1207	DTIMEF	END	ENDDOC	EXIT	FOIV	HEAD	IFENDF
	CHEKFIL	INPUTS	DATEF	MAKUNIT	END	ENDDOC	EXIT	FOIV	HEAD
	INPUTS	LSKIP	MAKUNIT	END	ENDDOC	EXIT	FOIV	HEAD	IFENDF
	SECOND	SUBHEAD	TITLER	XMIT	END	ENDDOC	EXIT	FOIV	HEAD
COUNOUT	LENGTH OF ALL ROUTINES	1146	DTIMEF	END	ENDDOC	EXIT	FOIV	HEAD	IFENDF
	COUNOUT	INPUTS	DATEF	MAKUNIT	END	ENDDOC	EXIT	FOIV	HEAD
	INPUTS	LSKIP	MAKUNIT	END	ENDDOC	EXIT	FOIV	HEAD	IFENDF
	SECOND	SURHEAD	TITLER	XMIT	END	ENDDOC	EXIT	FOIV	HEAD
CROSS	LENGTH OF ALL ROUTINES	77							
	CROSS	END	END	END	END	END	END	END	END
DATEF	LENGTH OF ALL ROUTINES	14							
	DATEF	END	END	END	END	END	END	END	END
DOT	LENGTH OF ALL ROUTINES	25							
	DOT	END	END	END	END	END	END	END	END
DTIMEF	LENGTH OF ALL ROUTINES	14							
	DTIMEF	END	END	END	END	END	END	END	END
ELF	LENGTH OF ALL ROUTINES	40							
	ELF	ATAN2	END	END	END	END	END	END	END
EULANG	LENGTH OF ALL ROUTINES	773							
	EULANG	ACOS	ASIN	ATAN2	COS	DOT	END	FOIV	SEPA
	SIN	END	END	END	END	END	END	END	END
FOIV	LENGTH OF ALL ROUTINES	5							
	FOIV	END	END	END	END	END	END	END	END
GRAV	LENGTH OF ALL ROUTINES	55							
	GRAV	END	END	END	END	END	END	END	END
HEAD	LENGTH OF ALL ROUTINES	1146	DTIMEF	END	ENDDOC	EXIT	FOIV	IFENDF	INPUTC
	HEAD	INPUTS	DATEF	MAKUNIT	END	ENDDOC	EXIT	FOIV	IFENDF
	INPUTS	LSKIP	MAKUNIT	END	ENDDOC	EXIT	FOIV	IFENDF	INPUTC
	SUBHEAD	TITLER	XMIT	END	ENDDOC	EXIT	FOIV	IFENDF	INPUTC
IN	LENGTH OF ALL ROUTINES	1456	COUNOUT	DATEF	DTIMEF	END	ENDDOC	EXIT	FOIV
	IN	CHEKFIL	COUNOUT	DATEF	DTIMEF	END	ENDDOC	EXIT	FOIV
	HEAD	IFENDF	INPUTS	LSKIP	MAKUNIT	END	ENDDOC	EXIT	FOIV
	OUTPUTC	RANF	SECOND	TITLER	XMIT	END	ENDDOC	EXIT	FOIV
JACOB	LENGTH OF ALL ROUTINES	826							
	JACOB	END	END	END	END	END	END	END	END
KALLER	LENGTH OF ALL ROUTINES	10							
	KALLER	END	END	END	END	END	END	END	END
LCCLAX	LENGTH OF ALL ROUTINES	244	CROSS	CROSS	END	FOIV	FOIV	UNITV	XMIT
	LCCLAX	ACGGER	CROSS	CROSS	END	FOIV	FOIV	UNITV	XMIT

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PROJ!!! LENGTH OF ALL ROUTINES 61
PROJ!!!! END!!!! FDIV!!!!

RNV!!!! LENGTH OF ALL ROUTINES 96
RNV!!!! ACQOER!!!! ALOS!!!! COSI!!!! END!!!! SIN!!!! SORT!!!!

SEPA!!!! LENGTH OF ALL ROUTINES 147
SEPA!!!! ACOS!!!! ASIN!!!! DOT!!!! FDIV!!!! SORT!!!! XHAG!!!!

SETKORD LENGTH OF ALL ROUTINES 1367
SETKORD!!!! COUNOUT!!!! DATE!!!! DTIME!!!! ENDDOC!!!! EXIT!!!! FDIV!!!! HEAD!!!!
IFENDF!!!! INPUTS!!!! LSKIP!!!! MDATE!!!! MCHAR!!!! MTIME!!!! OLDATA!!!! OUTPTC!!!!
RANF!!!! SECOND!!!! SURHEAD!!!! TITLER!!!! XMIT!!!!

SITEP!!! LENGTH OF ALL ROUTINES 74
SITEP!!!! COSI!!!! END!!!! SIN!!!! XMIT!!!!

SONIC!!! LENGTH OF ALL ROUTINES 114
SONIC!!!! END!!!! FDIV!!!!

STALE!!! LENGTH OF ALL ROUTINES 514
STALE!!!! ACQOER!!!! ATAN2!!!! AZF!!!! CROSS!!!! DOT!!!! ELF!!!! END!!!!
FDIV!!!! SIN!!!! SORT!!!! UNIV!!!! XHAG!!!! XMIT!!!!

STOUT!!! LENGTH OF ALL ROUTINES 294A
STOUT!!!! ACQOER!!!! ATAN2!!!! AZF!!!! CROSS!!!! DATE!!!! DOT!!!! DTIME!!!!
ELF!!!! END!!!! ENDDOC!!!! EXIT!!!! FDIV!!!! INPUTS!!!! LSKIP!!!!
MAKUNIT!!!! MCHAR!!!! MDATE!!!! MTIME!!!! OLDATA!!!! OUTPTC!!!! OUTSET!!!!
SIN!!!! SORT!!!! STALE!!!! STREP!!!! TITLER!!!! UNIV!!!! XHAG!!!! XMIT!!!!

STREP!!! LENGTH OF ALL ROUTINES 460
STREP!!!! ATAN2!!!! AZF!!!! COSI!!!! ELF!!!! END!!!! FDIV!!!! SIN!!!! SORT!!!!
XMIT!!!!

SUBHEAD LENGTH OF ALL ROUTINES 134
SUBHEAD!!!! MCHAR!!!! OUTPTC!!!! XMIT!!!!

SUBVECI LENGTH OF ALL ROUTINES 27
SUBVECI!!!! END!!!!

TITLER! LENGTH OF ALL ROUTINES 1146
TITLER!!!! DATE!!!! DTIME!!!! ENDDOC!!!! EXIT!!!! FDIV!!!! HEAD!!!! IFENDF!!!!
INPUTS!!!! LSKIP!!!! MAKUNIT!!!! MCHAR!!!! MDATE!!!! MTIME!!!! OLDATA!!!! OUTPTC!!!!
SECOND!!!! SUBHEAD!!!! XMIT!!!!

TITLIN! LENGTH OF ALL ROUTINES 1234
TITLIN!!!! CHECKFIL!!!! DATE!!!! DTIME!!!! ENDDOC!!!! EXIT!!!! FDIV!!!! HEAD!!!!
IFENDF!!!! INPUTS!!!! LSKIP!!!! MCHAR!!!! MDATE!!!! MTIME!!!! OLDATA!!!! OUTPTC!!!!
RANF!!!! SECOND!!!! SUBHEAD!!!! TITLER!!!! XMIT!!!!

TRANSPH! LENGTH OF ALL ROUTINES 267
TRANSPH!!!! END!!!! XMIT!!!!

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TRPLATE	LENGTH OF ALL ROUTINES	164
	TRPLATE::: END::::::	
UNITV::	LENGTH OF ALL ROUTINES	43
	UNITV::: :::: END::::::	
VECLINI	LENGTH OF ALL ROUTINES	25
	VECLINI::: END::::::	
VECSUMI	LENGTH OF ALL ROUTINES	26
	VECSUMI::: END::::::	
XWAGI::	LENGTH OF ALL ROUTINES	24
	XWAGI::: END::::::	
		FDIV::: SORT::::::

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